

PATENT

3/16/05 60075W

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Rhoads et al.

Application No.: 09/465,418

Filed: December 16, 1999

For: COUNTERFEIT DETERRENCE  
SYSTEM

Examiner: M. Dastouri

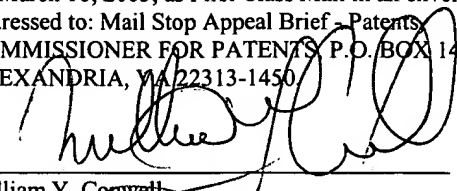
Date: March 16, 2005

Art Unit 2623

Confirmation No. 8844

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TRANSMITTAL LETTER

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- ☒ Appeal Brief (fee **\$500.00**)
- ☒ Applicant petitions for a three month extension of time of January 15, 2005 to April 15, 2005. If any additional extension of time is required, please consider this a petition therefor. (fee **\$1020.00**)
- ☒ Please charge **\$1,520.00** (fee for Appeal Brief and extension of time) and any additional fees which may be required in connection with filing this document and any extension of time fee, or credit any overpayment, to Deposit Account No. 50-3283.

Date: March 16, 2005

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Respectfully submitted,

DIGIMARC CORPORATION

By

  
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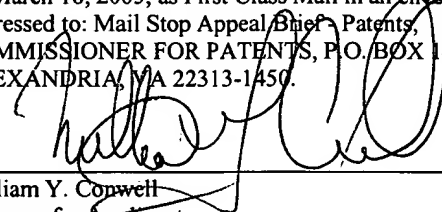
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William Y. Cornwell  
Attorney for Applicant

**APPEAL BRIEF**

Mail Stop: Appeal Brief - Patents  
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Sir:

This brief is in furtherance of the Notice of Appeal filed November 15, 2004. Please charge the fee required under 37 CFR 1.17(f), and the extension of time fee, and any other fee or deficiency, to deposit account 50-3283 (see transmittal letter).

03/22/2005 MAHMED1 00000048 503283 09465418

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**I. REAL PARTY IN INTEREST**

The real party in interest is Digimarc Corporation, by an assignment from the inventors, recorded at Reel 10735, Frames 77-79, on April 3, 2000.

**II. RELATED APPEALS AND INTERFERENCES**

None.

**III. STATUS OF CLAIMS**

Claims 1-5, 18, 19 and 23-29 are finally rejected and appealed.

Claims 20-22 are allowed; claims 6-17 are canceled.

**IV. STATUS OF AMENDMENTS**

All earlier-filed amendments have been entered.

**V. BACKGROUND AND SUMMARY OF CLAIMED SUBJECT MATTER**

The proliferation of personal computer systems with good scanners and printers poses a serious threat of home-based counterfeiting of security documents, such as banknotes.<sup>1</sup> The present invention concerns methods for reducing this threat.<sup>2</sup>

Documentary evidence attached to this brief, and discussed below, shows that the claimed subject matter has been adopted by the world's leading central banks to deter the counterfeiting of their currencies. Such evidence also indicates that leading technology companies, such as Hewlett-Packard, Adobe and Canon, have cooperated with these central banks in worldwide deployment of the claimed arrangements. (Due to confidentiality

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<sup>1</sup> See, e.g., specification, page 1, lines 21-22.

constraints, the present assignee is limited in what it can reveal about its relationship with these central banks and technology companies – thus the reference to documents authored by others.<sup>3</sup>)

Counterfeit deterrence has two components. First, a computer system must be capable of recognizing a document image as that of a banknote. Second, the system must take an appropriate action responsive to attempted user-processing of such an image.<sup>4</sup>

As to the first component, there are various ways to recognize a document image as a banknote. One is to search the image for official seals and other visible hallmarks of a banknote. A different method – the one preferred by applicants – is to analyze the suspect imagery for information hidden as a digital watermark – information which has been introduced into

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<sup>2</sup> See, e.g., specification, page 2, lines 2-7.

<sup>3</sup> Digimarc, the present assignee, conducted a public offering of its stock in 1999. To enable Digimarc to comply with SEC prospectus requirements, its central bank customers approved public disclosure of certain information about their relationship with Digimarc. Digimarc is obliged to keep other information confidential. Excerpts from Digimarc's stock prospectus (see <http://www.sec.gov/cgi-bin/srch-edgar>: Form S1/A filed by Digimarc on November 24, 1999) include the following:

- *Digimarc has been awarded a multi-year contract to develop a system to deter the use of personal computer systems in the counterfeiting of currency. The contract is funded by a consortium of leading central banks. The identities of the participating banks, design of the system and timetable for deployment are confidential. The central banks have acquired an exclusive license to Digimarc's technologies for deterring the counterfeiting of currency. Digimarc has retained the exclusive right to use the technologies developed for the system in other applications, subject to approval by the banks.*
- *In 1998, we began working with a consortium of leading central banks to develop a system to deter the use of personal computer systems in the counterfeiting of currency. Providing services relating to the development of this anti-counterfeiting system accounted for 51% of our total revenue in 1998 and 92% of our total revenue for the first nine months of 1999. This increase in the share of total revenue resulted from our securing a contractual relationship with the consortium. We anticipate that this development project will account for most of our revenue until we are able to generate substantial revenue from the introduction of new products that we are developing relating to document security and our Paper-as-Portal applications.*
- *[C]ounterfeiting constitutes a growing threat to the security of the world's currencies. The proliferation of high-resolution color copiers, scanners and printers, and increasingly powerful computers and image-processing software has made it possible for relatively unsophisticated users to produce counterfeit banknotes that pass as authentic in many environments. These developments have made casual counterfeiting a more attractive crime of opportunity, leading to a substantially increased burden on law agencies. In response to these threats, a number of leading central banks have decided to add new anti-counterfeiting features to their currencies using our digital watermarking technologies.*

A redacted version of Digimarc's contract with the consortium of central banks is attached as Exhibit 10.9 to the prospectus.

<sup>4</sup> See, e.g., specification, page 1, lines 22-24; page 3, lines 17-18; page 14 (Abstract), lines 4-7.

banknote designs to permit compliant systems to electronically recognize such artwork as corresponding to a banknote.<sup>5</sup>

Digital watermark technology (also known as steganography) encompasses a great variety of techniques by which a digital data message (of one or many bits<sup>6</sup>) is hidden in some other object, without leaving human-apparent evidence of alteration or data representation. The present specification notes that one form of digital watermarking favored by the applicants is to make subtle local changes to the luminance of a graphic to thereby encode a hidden auxiliary data payload.<sup>7</sup> This can be done in various ways, such as by scattering fine droplets of ink through a region,<sup>8</sup> or by designing a weave-like pattern of fine lines (a weave whose line weight, location, and spacing is tailored to form a desired luminance pattern) and using this pattern as background art on the banknote.<sup>9</sup> The assignee's previous patent applications (which are incorporated by reference<sup>10</sup>) more fully detail these methods, as well as other methods (*e.g.*, techniques by which line art defining graphics, such as George Washington's face on the US \$1 bill, can be subtly altered to encode digital data). In all cases the banknote artwork looks essentially unchanged to a human viewer, but a suitably-programmed processor can decode the digital data payload from scanned image data, and trigger a corresponding response.

Documents to be protected against counterfeiting (*i.e.*, security documents, such as banknotes) are desirably encoded with a special digital watermark that is used *only* with such security documents.<sup>11</sup> Such hidden marking permits these document images to be distinguished (by compliant computer systems) from all others. In the present specification, the type of watermark that is exclusively used with banknotes is termed an ACS (Anti-Counterfeiting System) watermark.<sup>12</sup>

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<sup>5</sup> See, *e.g.*, specification, page 2, line 8; page 14 (Abstract), lines 7-8.

<sup>6</sup> See, *e.g.*, specification, page 4, lines 7-8.

<sup>7</sup> See, *e.g.*, specification, page 4, lines 28-29; page 5, lines 8-11;

<sup>8</sup> See, *e.g.*, specification, page 5, lines 7-11.

<sup>9</sup> See, *e.g.*, specification, page 4, lines 22-27.

<sup>10</sup> See, *e.g.*, reference to application 09/127,502 and others at page 1, line 7-15 of the present specification, and their incorporation-by-reference through language found at page 1, lines 17-18.

<sup>11</sup> See, *e.g.*, specification, page 2, lines 8-9.

<sup>12</sup> *Ibid.*

The specification explains that detectors for ACS watermarks can be implemented at multiple points in a personal computer system, *e.g.*, in scanner hardware, scanner driver, operating system, image editing application, printer driver, printer hardware, internet browser, etc.<sup>13</sup> Detection of an ACS watermark at any of these locations can trigger a counterfeit deterrence action.<sup>14</sup>

The second component of counterfeit deterrence – responding to detection of a banknote image – can take various forms. Example responses found in the prior art are typically mechanistic and are often punitive, such as simply interrupting processing, or scarring a copy (*e.g.*, by overprinting a “VOID” legend), or inserting forensic tracer data in the copy by which the user might be identified and prosecuted.<sup>15</sup>

Applicants’ claimed combinations involve different, more constructive, responses to detection of apparent banknote reproduction: (1) education, and/or (2) giving the user what they want (sort of).

The first response is to educate the user.<sup>16</sup> Many people who try to reproduce banknotes using their home computer – often on a lark – have no idea of the gravity of the offense, and the harsh penalties that can result. Once informed of these consequences, casual experimenters will commonly discontinue their attempted actions.

Accordingly, one aspect of the invention is a method that includes – after recognizing a security document - responding by directing a web browser on the user’s computer to a web site related to the document<sup>17</sup> (claim 1). Through this web site the user can learn the legal limitations on use of banknote imagery<sup>18</sup> (*e.g.*, claim 19).

Take, for example, a person who tries scanning a US \$20 bill, or a 20 Euro banknote, into Adobe Photoshop CS. According to published reports,<sup>19</sup> such action will lead the Photoshop

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<sup>13</sup> See, *e.g.*, specification, page 3, lines 1-5; page 6, lines 4-8.

<sup>14</sup> See, *e.g.*, specification, page 6, lines 11-20.

<sup>15</sup> See, *e.g.*, patent 5,257,119.

<sup>16</sup> See, *e.g.*, specification, page 7, lines 1-4; page 14 (Abstract), lines 5-6.

<sup>17</sup> See, *e.g.*, specification, page 6, lines 11-20; page 7, lines 1-4; page 14 (Abstract), lines 5-6.

<sup>18</sup> See, *e.g.*, specification, page 7, lines 2-3; page 14 (Abstract), lines 4-6.

<sup>19</sup> Various exhibits, discussed more fully below.

software to present a dialog box that directs the user to the web site [www.rulesforuse.org](http://www.rulesforuse.org),<sup>20</sup> as follows<sup>21</sup>:

This application does not support the unauthorized processing of banknote images.

For more information, select the information button below for Internet-based information on restrictions for copying and distributing banknote images or go to [www.rulesforuse.org](http://www.rulesforuse.org).

(Selecting the “information button” starts a web browser on the user’s computer and directs it to [www.rulesforuse.org](http://www.rulesforuse.org).)

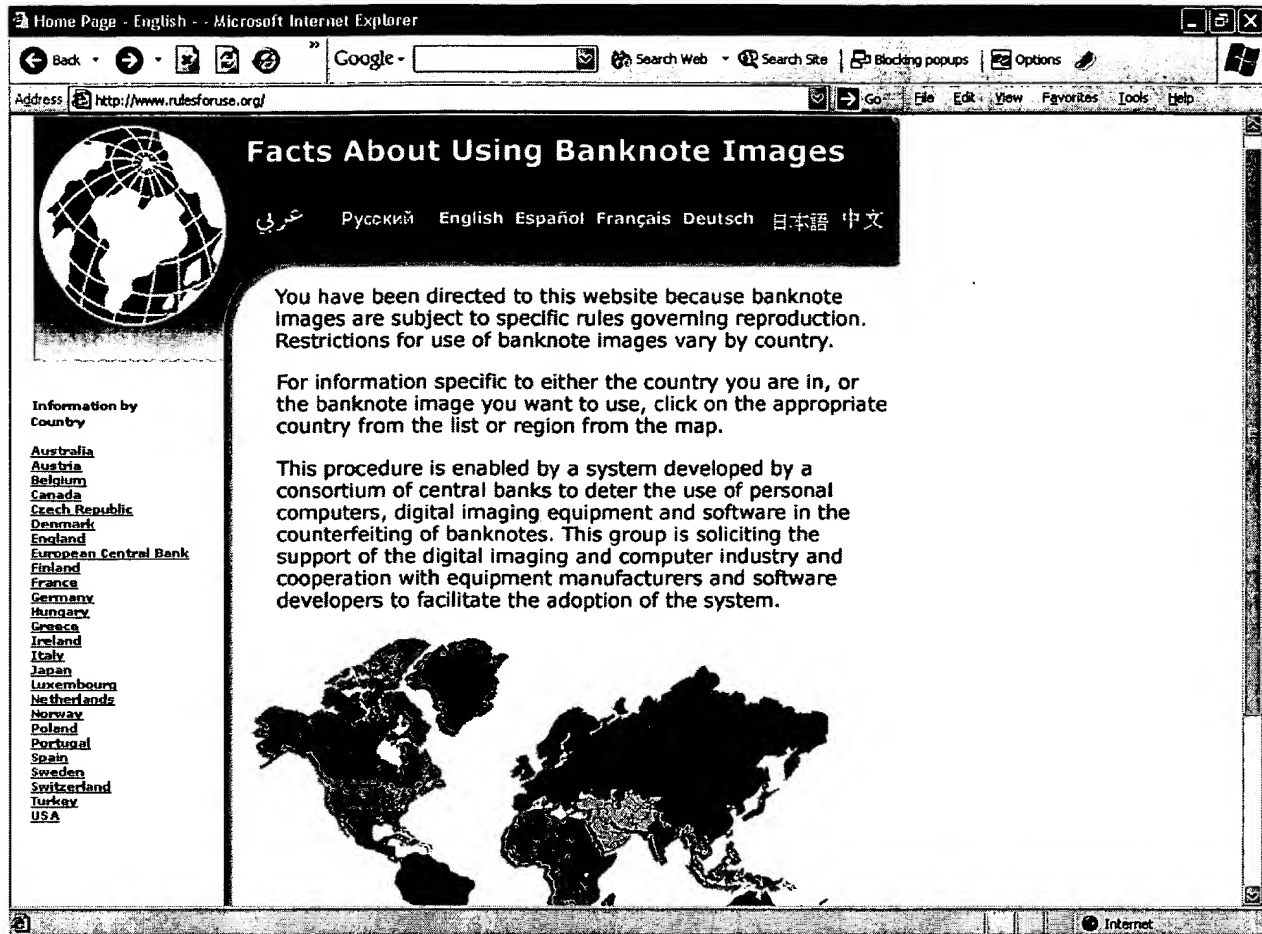
The rulesforuse web site presents the following screen:

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<sup>20</sup> Documentary evidence discussed below reveals that the proprietor of this domain registration is the European Central bank.

<sup>21</sup> Exhibit S (4h), submitted to the PTO with the Amendment filed April 30, 2004, and attached hereto as Exhibit S (4h).





From the country-specific links on the left side of the web page, the user can learn about permitted and forbidden uses of banknote imagery. The “USA” link, for example, directs the user to a Secret Service web page, which explains that color reproductions of US banknotes are permitted if the reproduction is smaller than 75% of actual size, or larger than 150% of actual size. This is in accordance with another aspect of the invention, which comprises recognizing a government-issued security document and, in response, contacting a web site that provides information concerning reproduction of the document<sup>22</sup> (independent claim 18).

Applicants’ second response to detection of a banknote, distinct from the educational aspects just reviewed, is to provide users what they want – sort of.

<sup>22</sup> See, e.g., specification, page 7, lines 1-4.

Applicants recognized that some people who scan, process or print banknote imagery have rational, lawful reasons for doing so.<sup>23</sup> For example, such a person may be a graphic artist who is composing a magazine advertisement for a bank, and wants banknote artwork to be part of the ad layout. Or the user may simply be a student who wants a banknote image for use in a school project. Applicants recognized that these legitimate needs can be met by providing such users with substitute image artwork that not an *exact* reproduction of banknote artwork, but close enough for legitimate purposes.<sup>24</sup>

Accordingly, a further aspect of certain of applicants' claims is to provide such users with substitute image data that generally corresponds to the detected banknote (*e.g.*, claims 2, 20 and 29).<sup>25</sup>

Again, taking the example of a user who tries to scan a US \$20 into Adobe Photoshop CS, the user can click on the "USA" link on the [www.rulesforuse.org](http://www.rulesforuse.org) page (reproduced above) to which Photoshop directs him, and from the resulting Secret Service web page click on a link saying:

For additional illustrations of U.S. Currency visit the [Bureau of Engraving and Printing](http://www.bep.gov).

This Bureau of Engraving and Printing (BEP) web site has a link "U.S. Banknotes" to a gallery of front/back images of US banknotes, ranging from the US \$1 to the US \$100. Additionally, this BEP web site has a link "Anti-Counterfeiting" which links to a page illustrating new currency designs, providing higher resolution PDF files of the substitute US \$20 and US \$50 images (see, *e.g.*, [http://www.moneyfactory.com/newmoney/files/Bill\\_glossies\\_white.pdf](http://www.moneyfactory.com/newmoney/files/Bill_glossies_white.pdf)). These substitute images include some minor differences from real banknote images, but are close enough to suffice for most legitimate purposes.

By these claimed arrangements, applicants sought to deter the counterfeiting of banknote images by constructive approaches, rather than the mechanistic, and often punitive approaches of the prior art. The widespread adoption of such technology by the world's leading central banks

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<sup>23</sup> See, *e.g.*, specification, page 2, lines 19-21.

<sup>24</sup> See, *e.g.*, specification at page 2, lines 19-21; page 6, lines 18-24; page 14 (Abstract), lines 4-5.

<sup>25</sup> *Ibid.*

and technology companies, as evidenced by the attachments, indicates that applicants' approach has met with unusual commercial success.

(The Detailed Description portion of the specification totals nine pages; the Board is invited to review same in its entirety for additional understanding of the technology.)

## **VI. GROUNDINGS OF REJECTION**

Claims 1-5 stand rejected as obvious over Russell (5,905,248) in view of Mowry (5,951,055).

Claims 18 and 24-27 stand rejected as obvious over Witschorik (6,131,718) in view of Durst (5,933,829).

Claims 19, 23, 28 and 29 stand rejected as obvious over Witschorik in view of Durst, as above, additionally in view of Gruhl ("Information Hiding to Foil the Casual Counterfeiter").

## **VII. ARGUMENT**

### **1. Review of Russell**

Russell is the principal reference over which claims 1-5 are rejected.

Russell discloses a barcode or magstripe reading system, in which reading of such data causes the system to execute a software applet (*e.g.*, in JAVA<sup>26</sup>) found at a web page (the barcode/magstripe indicates the URL of the web page where the applet is found).<sup>27</sup> A consumer equipped with such a reader system could use it to engage in commerce activities. For example, Russell's Fig. 1 (reproduced below) shows an "Internet Transaction Directory" (13) from which the user can scan different barcodes to, *e.g.*, engage in a financial transaction or a ticket purchase.<sup>28</sup> His Fig. 6A (also reproduced below) shows a similar arrangement in which the URL is recorded on the mag stripe of a transaction card, such as a credit card.<sup>29</sup>

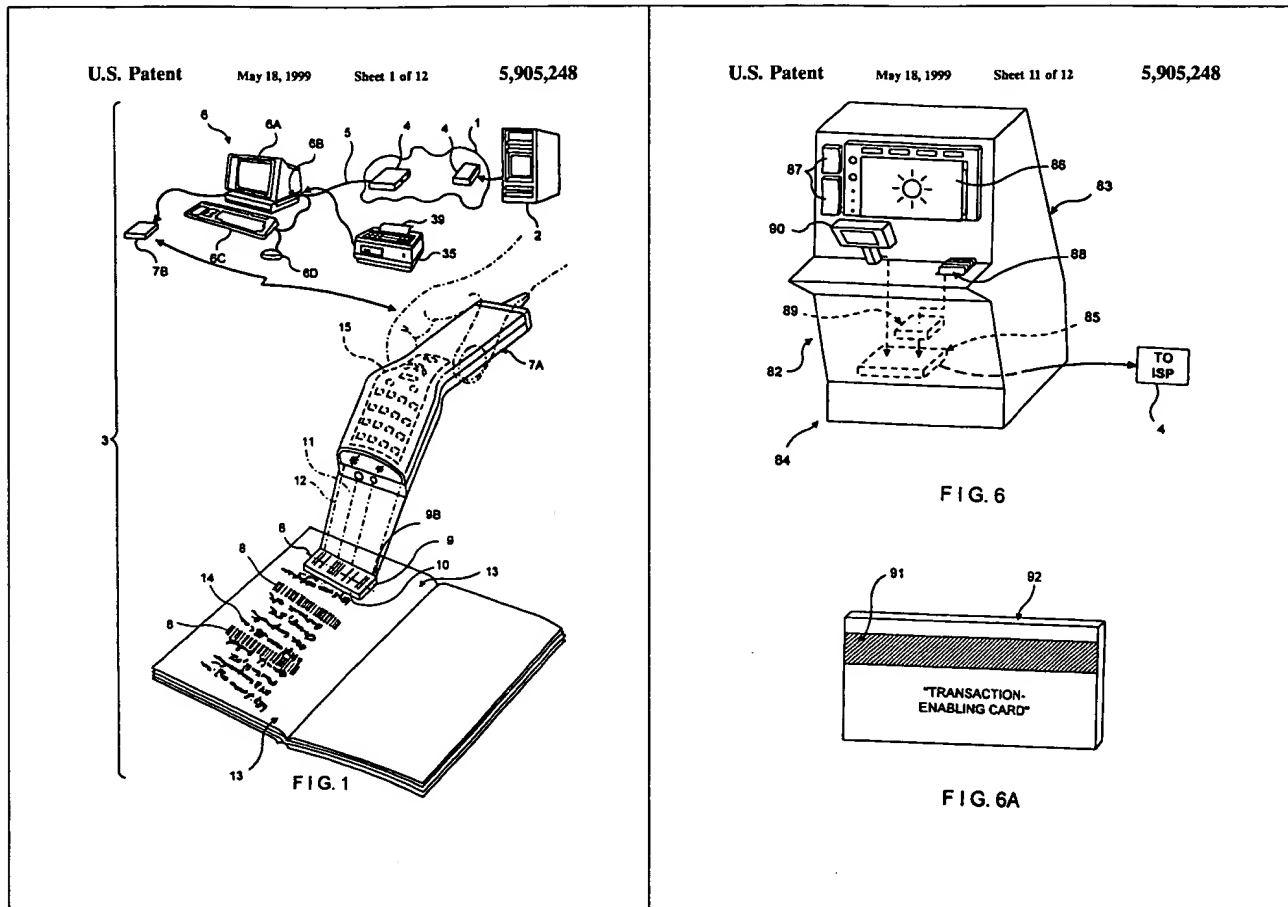
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<sup>26</sup> Russell, patent 5,905,248, col. 6, line 39.

<sup>27</sup> Russell, patent 5,905,248, col. 2, lines 55-62.

<sup>28</sup> Russell, patent 5,905,248, col. 20, lines 20-22.

<sup>29</sup> Russell, patent 5,905,248, col. 19, lines 25-28.



The Office – which relies on Russell as the principal references for the § 103 rejection of claims 1-5 - contends that Russell teaches “recognizing a document.”

It does not. Russell *reads a barcode* or *senses magstripe data*. It doesn’t “recognize a document.”

When you look through your wallet for a \$1 bill, you recognize it by characteristic features that uniquely identify it. These might include the money-green “1” printed in the corner with characteristic scroll embellishments, or the line art engraving of George Washington in the center of the document. It is from such characteristic features that recognition is performed.

Simply *reading* the document for a “1” isn’t enough. Many other papers in your wallet meet that test. Recognition requires more than reading.

Applicants’ claims 1-5 call for “recognizing a security document.” Construed in accordance with the specification – and its common meaning – this language calls for examining

unknown data for one or more characteristic features that serve to identify it as a security document. Russell doesn't teach any such recognition.

## 2. Review of Mowry

Mowry is the secondary reference that is combined with Russell in the § 103 rejection of claims 1-5.

Mowry is understood to teach documents (including checks) that are printed with a background pattern composed of '\ ' and '/ ' markings (termed "glyphs," illustrated in his Fig. 1, below) to encode the document with machine readable information (*e.g.*, company information, cryptic codes, etc.<sup>30</sup>).

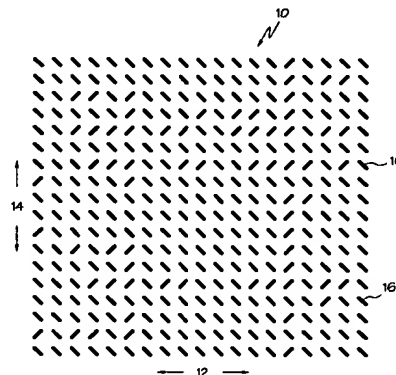


FIG. 1

Mowry's glyph marking is sufficiently finely detailed that it cannot be accurately reproduced through photocopying, yet is still readable despite a fair amount of damage to the original document.<sup>31</sup> By such arrangement, a document can be analyzed to determine whether it is an original or a photocopy, by reference to whether the background pattern can be read to yield the expected information.

(Mowry has other teachings not relied upon by the Office, which occupy most of his disclosure, *e.g.*, a "VOID" pantograph that becomes apparent, *e.g.*, through aliasing effects, when this pattern is photocopied.)

<sup>30</sup> Mowry, patent 5,951,055, col. 5, lines 64-66.

<sup>31</sup> Mowry, patent 5,951,055, 5, lines 1-2 and line 68 – col. 6, line 6.

3. **Claim 1 (§ 103: Russell + Mowry)**

Claim 1 reads:

*1. A method comprising recognizing a security document and, in response, directing a web browser to a web site related to the document.*

Contrary to the Final Rejection, the primary reference, Russell, does not teach “recognizing a document.” He *reads data* from a document, but no “recognizing a document” is contemplated. (To Russell, data can be read from a can of beans or a credit card – his teachings don’t distinguish the two.)

Russell *does* teach linking to a web site based on the data read by his reader device, and executing a JAVA applet available from that web site (thereby enabling web transactions responsive to data found on products and documents).

The Office then seeks to combine Russell’s teachings with that of Mowry. Mowry reads data from a document to determine whether it is an original or an imperfectly-reproduced photocopy, *i.e.*, document authentication.

Absent hindsight, it is not evident how, or why, an artisan would have sought to combine the references. How and why would Mowry’s document authentication technique be employed in conjunction with Russell’s product-responsive web transaction system?

The rationale offered in the Final Rejection does not meet the Office’s *prima facie* burden. It states:

It would have been obvious to one of ordinary skill in the art to use the security document hidden images and machine-readable codes as the “other printed media” of Russell so as to provide another use of Russell’s system, which is particularly useful because Russell teaches a hand-held version that could be used by merchants and consumers not only to prevent unauthorized reproduction, but also to prevent passing off the unauthorized copy. Additionally, the system of Russell teaches that his system can be used to direct a user to information resources in order to more effectively carry out the information-related transactions.

This rationale evidences hindsight reconstruction, rather than obviousness.

The incentives for combination offered in the Examiner’s first sentence are to enhance

Russell's system so as to "prevent unauthorized reproduction," and to "prevent passing off the unauthorized copy." But this is a non-sequitur, as Russell is not a reproduction or copying system. His handheld device is a scanner only; no printing is contemplated.

The second sentence merely recounts Russell's stated purpose, of carrying out transactions using web resources. No relevance to Mowry is indicated.

Accordingly, the Office has failed to satisfactorily explain why an artisan would have been led to combine the cited references to yield the claimed combination. As such, the rejection of claim 1 should be reversed.

4. **Claim 2 (§ 103: Russell + Mowry)**

Claim 2 depends from claim 1, and is similarly allowable. Moreover, claim 2 is also independently patentable. The claim reads:

*2. The method of claim 1, further comprising presenting to a user a substitute image from the web site.*

The Final Rejection cites Mowry at col. 5, lines 7-10 for this claim requirement. However, that passage simply recounts the prior art in which a photocopying process introduces visible modifications when copying a security document:

*In the past, many systems have been used to protect documents from illicit copying and/or copying with alterations that produce pseudo originals to substitute for genuine documents. These systems have depended on copiers providing differential reproduction of different portions of the original image. The person examining the document must judge the authenticity based on various clues. In many cases, the word "VOID" stands out on the copy but is suitably hidden on the original.<sup>32</sup>*

This does not teach or suggest "presenting to a user a substitute image from the web site" as required by claim 2.

Moreover, the Final Rejection makes no attempt to explain why this teaching of "copying with alterations" would have any applicability to Russell's web-transaction system.

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<sup>32</sup> Mowry, patent 5,951,055, col. 5, lines 7-15.

Again, the rejection falls short of the § 103 standard, and should be reversed.

**5. Claim 3 (§ 103: Russell + Mowry)**

Claim 3 depends from claim 1, and is similarly allowable. Moreover, claim 3 is also independently patentable. The claim reads:

*3. The method of claim 1, further comprising presenting a user with supplemental information relating to the recognized security document, or to its permitted use, from the web site.*

The Final rejection summarily dismisses this claim with the curt assertion:

*Clearly, during an information-based transaction, information must be exchanged between the user and computer system being accessed.<sup>33</sup>*

Again, the Action has failed to provide a cognizable rationale leading an artisan to the claimed arrangement. Again, the rejection should be reversed.

**6. Claim 4 (§ 103: Russell + Mowry)**

Claim 4 depends from claim 1, and is similarly allowable. Moreover, claim 4 is also independently patentable. The claim reads:

*4. The method of claim 1 that includes recognizing a security document by a digital watermark encoded therewith.*

The Action notes that Mowry suggests other information bearing elements can be employed in his system that are “not recognizable by the unaided human eye,” and thereby equates such marks to digital watermarks. The proposed combination with Russell, however, then runs into a practical failing.

If such marks are employed in Russell’s system, the user would not know where

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<sup>33</sup> Final Rejection, page 3, last 3 lines.



Russell's handheld reader device should be directed to read the information – the target can't be recognized by the user.

Thus, rather than being obvious to an artisan, the proposed combination would be an arrangement that an artisan would naturally avoid.

Again, the Office has failed to establish *prima facie* unpatentability, and the rejection of claim 4 should thus be reversed.

**7. Claim 5 (§ 103: Russell + Mowry)**

Claim 5 stands or falls with claim 1, from which it depends.

**8. Review of Witschorik**

Witschorik (6,131,718) is the principal reference over which claims 18 and 24-27 are rejected.

Witschorik teaches a banknote having writable magnetic media on which the banknote's serial number and a security code are recorded. A currency scanning terminal located at a store or bank reads the recorded information from a banknote, relays it to a central security computer (*e.g.*, over a phone line), and receives back a good/bad indication, together with an updated security code that the terminal writes to the banknote's magnetic media.

**9. Review of Durst**

Durst (5,933,829) is the secondary reference that is combined with Witschorik in the obviousness rejections of claims 18 and 24-27.

Durst teaches a system by which users who read a printed document, such as a magazine advertisement, can link to associated web content, by scanning a barcode printed with the magazine advertisement.<sup>34</sup> The scanner reads the barcode (which identifies the advertisement) and sends this data – together with information about the user – to a central server, which returns

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<sup>34</sup> Durst, patent 5,933,829, col. 4, lines 51-56.

a link to an associated web page.

**10. Claim 18 (§ 103: Witschorik + Durst)**

Claim 18 reads:

*18. An automated method comprising:  
recognizing a government-issued security document; and  
in response to recognition of such document, contacting a web site that provides  
information concerning reproduction of the document.*

Witschorik is cited for recognizing a government-issued security document, and for communicating with a security computer to receive authentication data.

The Final Action indicates that Witschorik's only failing - as respects claim 18 - is that there is no specific teaching of accessing a web site.<sup>35</sup> Contacting a web site is said to be provided by Durst.

However, this analysis neglects to note that the web site required by claim 18 is one "that provides information concerning reproduction of the document." Witschorik does not teach this. Neither does Durst.

The Action contends that Durst provides this teaching, citing Durst at col. 8, lines 35-40.<sup>36</sup> However, Durst does not teach this claim limitation. The cited excerpt reads:

*This information is quite valuable to the vendor, since it enables it to determine the name and other useful information relating to users who have accessed its Web site. This information may also be utilized by file generation and storage means 50 to dynamically determine the file or files to be sent back to the client computer.*

Accordingly, since neither Witschorik nor Durst teaches a "web site that provides information concerning reproduction of the document," the cited art cannot be combined to yield the method of claim 18.

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<sup>35</sup> Final Rejection, page 5, lines 8-9.

<sup>36</sup> Final Rejection, page 5, lines 11-2.

Moreover, the rationale offered in the Final Rejection as allegedly motivating an artisan to combine Witschorik and Durst combination also falls short. The Action states:

*It would have been obvious to one of ordinary skill in the art to use the website accessing system of Durst with the security code number validating system of Witschorik to eliminate counterfeiting by instantly confirming the authenticity of the exchanged dollar and to provide output messages to the user regarding whether the dollar under test has been reproduced.*<sup>37</sup>

Neither Witschorik nor Durst concerns reproduction of a document. Both are simply reading devices. If Durst's web teachings were applied to Witschorik's banknote authenticator, what would result is Witschorik's system that communicates with his security computer over the web instead of a phone line. The good/bad indication returned by the security computer would still only inform the retailer or bank whether the offered banknote should be accepted or refused. "Information concerning reproduction of the document" would not be provided – that's a variation introduced by the Examiner, seemingly guided by hindsight

The rejection of claim 18 should thus be reversed: the art – if combined – fails to include each of the claim's limitations, and the rationale offered for the combination stems from hindsight rather than any suggestion in the art.

**11. Claim 24 (§ 103: Witschorik + Durst)**

Claim 24 stands or falls with claim 18, from which it depends.

**12. Claim 25 (§ 103: Witschorik + Durst)**

Claim 25 depends from claim 18 and is similarly allowable. Moreover, claim 25 is patentable independently. The claim reads:

*25. The method of claim 18 wherein said recognizing is performed by a scanner.*

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<sup>37</sup> Final Rejection, page 5, lines 18-22.

The Examiner contends that Witschorik's "recognizing a government-issued security document" is performed by a scanner.

Not so. Witschorik's scanner reads magnetically-encoded information from an inputted document. The scanner does not perform the banknote authentication (which the Examiner seems to equate with security document recognition). That is done by his terminal, in conjunction with the security computer.

In the claimed method, in contrast, the recognition of a security document is performed by "a scanner." Literally. Applicants' specification particularly notes that the ACS watermark detector (by which a security document is recognized in the preferred embodiment) can be implemented in various places, *i.e.*:

*The detector(s) can be deployed at various intervention points, including scanner hardware, scanner driver, operating system, image editing application, printer driver, printer hardware, internet browser, communications port, etc.*<sup>38</sup>

Witschorik does not teach that for which the Action cites it. Accordingly, the obviousness rejection premised on such factual error fails. Again, reversal is required.

**13. Claim 26 (§ 103: Witschorik + Durst)**

Claim 26 depends from claim 25 and is similarly allowable. Moreover, claim 26 is patentable independently. The claim reads:

*26. The method of claim 25 wherein said recognizing is performed by driver software in the scanner.*

Again, the Examiner asserts that Witschorik teaches this limitation, citing col. 8, lines 4-6. Again, Witschorik does not so teach. The cited passage reads:

*Incorporating an optical character recognition scanner into the currency scanning terminal 50 would also provide backup protection in the event that a bill's information is unreadable or communication cannot be established with the security computer 30.*

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<sup>38</sup> Specification, page 6, lines 6-8.

No teaching of recognizing a security document by driver software in a scanner, as recited in the claim, is provided.

Again, applicants' specification was explicit on this point:

*An illustrative ACS mark detector is a software development kit (SDK) designed for integration into software applications and control software including image editing applications, TWAIN drivers, scanner device drivers, printer device drivers, and other intervention points.*<sup>39</sup>

Again, the art does not teach that for which the Action cites it. Again, reversal of the rejection is required.

**14. Claim 27 (§ 103: Witschorik + Durst)**

Claim 27 stands or falls with claim 18, from which it depends.

**15. Review of Gruhl ("Information Hiding to Foil the Casual Counterfeiter")**

The Gruhl paper is cited as a tertiary reference in the obviousness rejections of claims 19, 23, 28 and 29 (in combination with Witschorik and Durst).

Gruhl notes that information hiding techniques can be employed to deter casual counterfeiting of banknotes.

**16. Claim 19 (§ 103: Witschorik + Durst + Gruhl)**

Claim 19 depends from claim 18 and is similarly allowable. Moreover, claim 19 is patentable independently. The claim reads:

*19. The method of claim 18 in which the web site provides information about counterfeiting and penalties.*

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<sup>39</sup> Specification, page 5, lines 24-26 (emphasis added).

The Final Rejection alleges that Gruhl teaches this limitation, citing *endnotes* 11-13, page 15. Gruhl does not teach this method limitation.

Like footnotes, the endnotes of the Gruhl article serve to document assertions made in the text of the article.

Gruhl's *Introduction* (page 1) states, "The U.S. Treasury Department took a multi-pronged approach to deal with this problem [of counterfeiting using color copiers]." This sentence then ends with the reference "[11, 12, 13]." These are the endnotes cited by the examiner, and refer the reader to federal web sites about counterfeiting.

Gruhl does not suggest any *method* employing these web sites. Rather, they just point the *reader of the article* to federal writings about counterfeiting.

The claimed method requires, in response to recognition of a government-issued security document, contacting a web site that provides information about counterfeiting and penalties. Gruhl has no teaching of such a method.

Again, the art fails to teach that for which it has been cited, and the rejection of claim 19 thus fails.

(Additionally, the rationale offered in support of the proposed combination of Witschorik, Durst and Gruhl evidences hindsight rather than obviousness.)

17. **Claim 23 (§ 103: Witschorik + Durst + Gruhl)**

Claim 23 depends from claim 18 and is similarly allowable. Moreover, claim 23 is patentable independently. The claim reads:

*23. The method of claim 18 in which the web site provides guidelines for legitimate use of security document images.*

In the embodiment described in applicants' specification, recognition of a banknote directs the user to a web site explaining how a banknote image may be used *legitimately*. Applicants' spec notes:

*The just-described web site additionally provides additional relevant information. For example, it can include warnings regarding counterfeiting and illegal reproduction of security documents, specific to that country. It can also provide guidelines for legitimate use of security document images (e.g. required size/color, required registration and pre-authorization, etc.)<sup>40</sup>*

Again, the Examiner cites Gruhl's *endnotes* as teaching the claim limitation. Again, these endnotes do not relate to the Gruhl method of foiling casual counterfeiters, but rather inform the reader about other writings on the topic.

Again, the art fails to teach a method in which recognition of a government-issued security document results in contacting a web site, where the web site provides guidelines for legitimate use of security document images.

(The Action fails to offer any rationale in support of the proposed combination.)

Again, the Office has failed to establish *prima facie* obviousness.

**18. Claim 28 (§ 103: Witschorik + Durst + Gruhl)**

Claim 28 depends from claim 18 and is similarly allowable. Moreover, claim 28 is patentable independently. The claim reads:

*28. The method of claim 18 wherein said recognizing includes decoding steganographically encoded data from visible light scan data corresponding to said document.*

The Examiner proposes grafting the data hiding teachings of Gruhl onto Witschorik. However, as will be recalled, Witschorik relies on rewriteable magnetic media on the banknote, which media is updated with a new code each time the banknote is validated. The data hiding teachings of Gruhl do not offer any updatable capabilities, so substitution of data hiding for Witschorik's magnetic encoding would appear to render Witschorik unfunctional.

Again, the proposed combination seems driven by hindsight, not by any suggestion in the art. Again, the rejection should be reversed.

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<sup>40</sup> Specification, page 7, lines 1-4 (emphasis added).

19. **Claim 29 (§ 103: Witschorik + Durst + Gruhl)**

Claim 29 depends from claim 1 and is similarly allowable. Moreover, claim 29 is patentable independently. The claim reads:

*29. The method of claim 1 that includes directing the web browser to a web site which informs a user that reproduction of the document is illegal, but offers substitute image data generally corresponding to said document.*

Curiously, claim 1 – from which claim 29 depends – is rejected on *none* of the same art as claim 29. Claim 1 is rejected over Russell and Mowry. Dependent claim 29 is rejected on Witschorik, Durst and Gruhl.

The Final Rejection dismisses claim 29 with the single sentence:

*Regarding Claim 29, arguments analogous to those presented for Claims 19, 23 and 28 are applicable to claim 29.*

However, nowhere in the Action are the limitations of claim 1 discussed in the context of Witschorik, Durst and Gruhl.

Again, the Final Rejection has failed to present a *prima facie* showing of obviousness, and the rejection of claim 29 should be reversed.

**VIII. COMMERCIAL SUCCESS**

As demonstrated above, the Final Rejection failed to meet its *prima facie* burdens under § 103. However, even if the requirements of the statute had been met, the Examiner erred by failing to properly weigh the unprecedented commercial success achieved by certain of the claimed arrangements.

In particular, documentary evidence of record in this case indicates that the combinations of rejected claims 1-5, 18, 19, 23-29 have achieved remarkable commercial success: they been adopted by leading issuers of the world's currencies, in cooperation with major technology



vendors such as Hewlett-Packard, Adobe and Canon.

The Examiner correctly observes that commercial success must have a nexus with the claimed invention, and not be due, *e.g.*, to advertising. However, the Examiner goes too far in faulting applicants for failing to provide a declaration from the European Central Bank, Hewlett-Packard, or Adobe concerning the invention.

The organizations involved in currency anti-counterfeiting naturally are reticent to talk about this system. They have made one pronouncement on the topic, a brief press release in March, 2004, which states only:

*In response to the threat of increasing use of personal computers and digital imaging tools in counterfeiting banknotes, the Governors of the G10<sup>41</sup> central banks authorised in May 2000 the development by a group of central banks of a system to deter PC-based counterfeiting. At their meeting in March 2004, the Governors took note of important progress in this area.*

*The Central Bank Counterfeit Deterrence Group (CBCDG) has now developed the Counterfeit Deterrence System consisting of anti-counterfeiting technologies which prevent personal computers and digital imaging tools from capturing or reproducing the image of a protected banknote.*

*Several leading personal computer hardware and software manufacturers have voluntarily adopted the system in recognition of the harm that counterfeit currency can cause their customers and the general public. The technology does not have the capacity to track the use of a personal computer or digital imaging tool and consumers will not notice any difference in the performance or effectiveness of products equipped with this technology.*

*Further information is available on the website [www.rulesforuse.org](http://www.rulesforuse.org), which has links to the regulations of various countries governing the reproduction of banknotes. In countries where the new technology restricts a user's ability to copy images of banknotes, the central bank (or the appropriate authority) will make available banknote images for reproduction in accordance with its requirements. The [www.rulesforuse.org](http://www.rulesforuse.org) website directs users to the procedures and sources of banknote images for countries where they are available.*<sup>42</sup>

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<sup>41</sup> The G10 central banks represent the world's largest economies. There are actually 11 countries in the group: the United States, Japan, Germany, Britain, France, Canada and Italy, plus Switzerland, Sweden, Belgium and the Netherlands. See Exhibit Y submitted to PTO with applicants' April 30, 2004 Amendment, and attached hereto as Exhibit Y (4b).

<sup>42</sup> Press release, "Central Banks and Technology Industry Join to Combat Banknote Counterfeiting," March 9, 2004, published by the Bank of International Settlements, submitted to PTO as Exhibit W with applicants' April 30, 2004 Amendment, and attached hereto as Exhibit W (4d).

This statement helps establish the required nexus. It notes that the system is “to deter PC-based counterfeiting” of banknotes, and that “several leading personal computer hardware and software manufacturers have voluntarily adopted the system.” Such voluntary adoption of the system by such leading hardware and software manufacturers is an affirmation of the merits of the technology.

The MPEP counsels:

*In considering evidence of commercial success, care should be taken to determine that the commercial success alleged is directly derived from the invention claimed, in a marketplace where the consumer is free to choose on the basis of objective principles, and that such success is not the result of heavy promotion or advertising, shift in advertising, consumption by purchasers normally tied to applicant or assignee, or other business events extraneous to the merits of the claimed invention, etc.*

In the present case, the “consumers” are those who adopted the technology: the worlds’ leading central banks and technology companies. Such organizations have essentially unlimited resources with which to develop technology. These central banks and leading technology companies “were free to choose” or develop technology “on the basis of objective principles.” Their adoption of the claimed technology did not result from “heavy promotion or advertising” by the inventors or assignee (a company with 73 employees in November, 1999<sup>43</sup>). Their adoption of applicants’ technology did not derive from consumption by purchasers normally tied to applicants or assignees. Their adoption of the technology did not derive from business events extraneous to the merits of the claimed invention.

Moreover, despite the brevity of the press release, it acknowledges many of the elements of applicants’ claimed combinations. It notes the [www.rulesforuse.org](http://www.rulesforuse.org) web site. It notes that this web site makes available regulations of various countries governing the reproduction of banknotes. It further notes that the web site directs users to sources of banknote images that can be reproduced in compliance with local laws.<sup>44</sup>

Adobe did not announce inclusion of this anti-counterfeiting technology when it released

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<sup>43</sup> Digimarc stock prospectus filed with the SEC on December 2, 1999. See S-1/A filing made by Digimarc at the SEC’s Edgar website, <http://www.sec.gov/edgar/searchedgar/companysearch.html>.

<sup>44</sup> Press release cited above at fn. 42.

its new version of Photoshop, *Photoshop CS*. However, when users started commenting that files containing images of the new U.S. \$20 bill and several Euro denominations could not be opened, Adobe made a brief response.<sup>45</sup> A CNET article quoted an Adobe spokesman as acknowledging that they had incorporated software in Photoshop that prevents users from opening files containing images of several nations' currencies.<sup>46</sup> The spokesman noted, "*We are not the first software application to do this, but we are probably the largest.*" (The article reported similar functionality discovered in Paintshop Pro, which is marketed by Jasc, now Corel.<sup>47</sup>)

In the CNET article, Digimarc is said to have confirmed that it had produced the code under contract to the banking group, but wouldn't discuss details. "*Due to the nature of the project, all the players and details are confidential*" said a Digimarc spokesperson.<sup>48</sup>

Another trade article about the system was published by InformationWeek in March, 2004.<sup>49</sup> It reported that the system is based on "*special coding on banknotes, which currently is included only on major currencies.*" The article goes on to report:

*Printer "drivers" – the software that makes printers work with PCs – recognize the code and refuse to print the complete image of a bill. That driver is included in almost 90 percent of the printers available today, said the official, who spoke on condition of anonymity.*<sup>50</sup>

Again, applicants submit that deployment of the claimed technology in "almost 90 percent of the printers available today" is a measure of remarkable commercial success. Again, that enormous number of printers would not include the technology if it did not have technical merit.

Among the other Exhibits submitted during prosecution and appended hereto is a

<sup>45</sup> Statement by Adobe's Kevin O'Connor, published January 8, 2004 at [www.adobeforums.com](http://www.adobeforums.com), submitted to PTO as Exhibit U with applicants' April 30, 2004 Amendment, and attached hereto as Exhibit U (4f).

<sup>46</sup> "Adobe, Others Slip Anticounterfeiting Code into Apps," CNET News, January 9, 2004, submitted to PTO as Exhibit X with applicants' April 30, 2004 Amendment, and attached hereto as Exhibit X (4c).

<sup>47</sup> *Ibid.*

<sup>48</sup> *Ibid.*

<sup>49</sup> "World Banks Working to Stop Counterfeiting," InformationWeek, March 9, 2004, submitted to PTO as Exhibit Y with applicants' April 30, 2004 Amendment, and attached hereto as Exhibit Y (4b).

presentation by a University of Cambridge researcher, Steven J. Murdoch, entitled “Software Detection of Currency.”<sup>51</sup> Murdoch’s research led him to report that software which prevents images of currency from being processed has been deployed in Adobe Photoshop, JASC Paintshop Pro, Hewlett-Packard printer drivers, and Canon’s scanner software. Again, he reports that the “code seems to have been produced by Digimarc, on behalf of the G10 Central Bank Counterfeit Deterrence Group (27 banks).”<sup>52</sup>

Exhibit A hereto is a Declaration establishing the authenticity of, and cataloging, all of the other submitted exhibits. It also briefly notes the contents of each. (For submission with this brief, these various Exhibits are identified by the paragraph and subparagraph in Exhibit A at which they are referenced. Additionally, they bear the Exhibit reference – if any – used when the document was originally submitted during prosecution. Thus, the CNET article identified at paragraph 4c of Exhibit A is labeled as Exhibit X (4c).) Among these Exhibits are:

- the [www.rulesforuse.org](http://www.rulesforuse.org) web page<sup>53</sup> (reproduced also in the *Background and Summary of the Claimed Subject Matter* section of this brief);
- Network Solutions “whois” search results, showing that the rulesforuse.org domain is owned by the European Central Bank;<sup>54</sup>
- the web page resulting when the ‘Australia’ link on the [www.rulesforuse.org](http://www.rulesforuse.org) web page is clicked;<sup>55</sup> and
- the U.S. Secret Service web page resulting when the ‘USA’ link on the [www.rulesforuse.org](http://www.rulesforuse.org) web page is clicked.<sup>56</sup>

Interestingly, many of the Exhibits include reports of users who express indignation that hardware or software they purchased is limited in its functionality (*i.e.*, refusing to process

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<sup>50</sup> *Ibid.*

<sup>51</sup> Murdoch, “Software Detection of Currency,” presented at 6<sup>th</sup> Information Hiding Workshop, 23-25 May, 2004, submitted to PTO as Exhibit AA with applicants’ November, 12, 2004 Amendment, and attached hereto as Exhibit AA (5a).

<sup>52</sup> *Ibid.*

<sup>53</sup> Exhibit 2A.

<sup>54</sup> Exhibit 2B.

<sup>55</sup> Exhibit 2C.

<sup>56</sup> Exhibit 3C.

banknote images). Exemplary is the comment “*This is insane ... Nobody, and certainly not software I pay for, should have any say of what sort of image I am allowed to open.*”<sup>57</sup>

This sort of customer backlash is a significant cost incurred by those technology companies that have deployed the claimed anti-counterfeiting technology in their hardware and software. The Board may reasonably infer that these companies considered the possibility of such negative consumer sentiment before they decided to incorporate the technology in their products. If the technology was without technical merit, it is reasonable for the Board to conclude that these companies would have refused to deploy it on this basis. Thus, such widespread deployment of the technology in these circumstances by these leading technology companies should properly be construed as an affirmation of the merits of the technology.

Such commercial success enjoyed by the claimed technology, and the apparent nexus of such success to the technology’s merits (rather than, *e.g.*, advertising, influence, etc.) properly rebuts any finding of *prima facie* obviousness.

## IX. CONCLUSION

The rejections fail because the Office has not established *prima facie* obviousness. Moreover, even if the Final Rejection had made a *prima facie* showing of obviousness as to any of claims 1-5, 18-19, or 23-29, the strong evidence of remarkable commercial success should rebut such showing. Accordingly, the Board is requested to reverse the outstanding rejections, and remand to the Examiner for issuance of a notice of allowance.

Date: March 16, 2005

**CUSTOMER NUMBER 23735**

Phone: 503-469-4800

FAX 503-469-4777

Respectfully submitted,

DIGIMARC CORPORATION

By

  
William Y. Conwell  
Registration No. 31,943

<sup>57</sup> Exhibit X (4c).

**APPENDIX A**  
**PENDING CLAIMS**

1. A method comprising recognizing a security document and, in response, directing a web browser to a web site related to the document.

2. The method of claim 1, further comprising presenting to a user a substitute image from the web site.

3. The method of claim 1, further comprising presenting a user with supplemental information relating to the recognized security document, or to its permitted use, from the web site.

4. The method of claim 1 that includes recognizing a security document by a digital watermark encoded therewith.

5. A computer storage medium having instructions stored thereon for causing a computer to perform the method of claim 1.

6-17. (Canceled)

18. An automated method comprising:  
recognizing a government-issued security document; and  
in response to recognition of such document, contacting a web site that provides information concerning reproduction of the document.

19. The method of claim 18 in which the web site provides information about counterfeiting and penalties.

20. An automated method comprising:  
recognizing a government-issued security document; and

in response to recognition of such document, contacting a web site that provides information concerning reproduction of the document, wherein the web site informs a user that reproduction of the document is illegal, but offers substitute image data generally corresponding to said document.

21. The method of claim 20 in which the substitute image data is encoded with tracking information.

22. The method of claim 20 in which the web site solicits user registration information before providing substitute image data.

23. The method of claim 18 in which the web site provides guidelines for legitimate use of security document images.

24. The method of claim 18 wherein the security document comprises a banknote.

25. The method of claim 18 wherein said recognizing is performed by a scanner.

26. The method of claim 25 wherein said recognizing is performed by driver software in the scanner.

27. The method of claim 18 wherein said recognizing is performed by a general purpose computer.

28. The method of claim 18 wherein said recognizing includes decoding steganographically encoded data from visible light scan data corresponding to said document.

29. The method of claim 1 that includes directing the web browser to a web site which informs a user that reproduction of the document is illegal, but offers substitute image data generally corresponding to said document.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Rhoads et al.

Application No.: 09/465,418

Filed: December 16, 1999

For: COUNTERFEIT DETERRENCE  
SYSTEM

Examiner: M. Dastouri

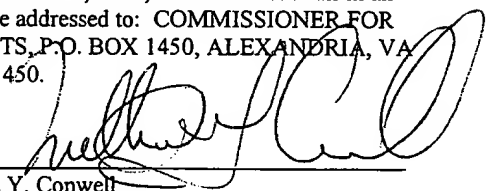
Date: November 12, 2004

Art Unit 2623

Confirmation No. 8844

**CERTIFICATE OF MAILING**

I hereby certify that this paper and the documents referred to as being attached or enclosed herewith are being deposited with the United States Postal Service on November 12, 2004, as First Class Mail in an envelope addressed to: COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450.

  
William Y. Conwell  
Attorney for Applicant

**DECLARATION**

I, William Y. Conwell, declare:

1. I am an attorney admitted to practice before the USPTO (Reg. No. 31,943), and represent the assignee Digimarc Corporation in connection with the captioned application.
2. I personally downloaded from the internet, and printed, the following documents, shortly before their submission to the USPTO with the Amendment After Final filed September 17, 2003 (mailed on August 19, 2003):
  - a. the [www.rulesforuse.org](http://www.rulesforuse.org) home page (entitled "Facts About Using Banknote Images");
  - b. Network Solutions 'whois' search results, showing ownership of the rulesforuse.org domain by the European Central Bank;
  - c. Web page (entitled "Representations/Reproductions of Australian Currency Notes") resulting when the 'Australia' link on the [www.rulesforuse.org](http://www.rulesforuse.org) web page is clicked (that resulting web page is <http://www.rba.gov.au/CurrencyNotes/LegalFramework/representation.ht>)



ml and is published by the Reserve Bank of Australia, the central bank for that country;

- d. USENET posting with the subject "Bank Notes and PSP8" concerning linking to [www.rulesforuse.org](http://www.rulesforuse.org) a banknote image is loaded in PaintShop Pro 8 (PSP8)  
(<http://groups.google.com/groups?q=%22rulesforuse.org%22&hl=en&lr=&ie=UTF-8&oe=UTF-8&selm=yt7V4BAyUv7%2BEwtD%40braeburn.demon.co.uk&mum=2> )
- e. Web newspaper clipping entitled "Counterfeiting Tempting For Teens"  
(<http://www.dailymail.com/news/Money/200305165/> )

3. I personally downloaded from the internet, and printed, the following documents, shortly before their submission to the USPTO with the Amendment Accompanying RCE filed October 27, 2003:

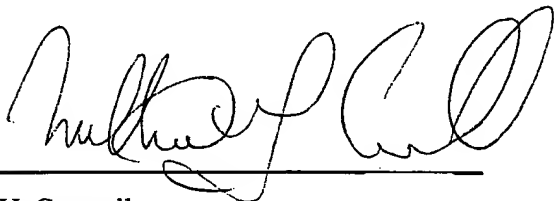
- a. Thread of 15 postings to internet discussion group (USENET) with the subject "New 20."
- b. Posting to internet discussion group (USENET) with the subject "*Scanner Recs Wanted*" and listing J.S. Snow as author.
- c. Web page "*Know Your Money*" published by the U.S. Secret Service and hosted by the U.S. Treasury with information about permitted uses of U.S. currency images (and penalties for improper use). This web page was displayed when the undersigned clicked on a "USA" link on the [www.rulesforuse.org](http://www.rulesforuse.org) web page.

4. I personally downloaded from the internet, and printed, each of the following documents, shortly before their submission to the USPTO with the Amendment filed April 30, 2004:

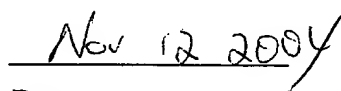
- a. USENET posting with subject "*HP Printers and Currency Anti-Copying Measures*," dated January 17, 2004 (Exhibit Z, 2 pages);
- b. Article from InformationWeek entitled *World Banks Working to Stop Counterfeiting*, dated March 9, 2004 (Exhibit Y, 2 pages);

- c. Article from CNET News entitled *Adobe, Others Slip Anticounterfeiting Code Into Apps*, dated January 9, 2004 (Exhibit X, 2 pages);
  - d. Web press release from Bank of International Settlements entitled *Central Banks and Technology Industry Join to Combat Banknote Counterfeiting*, dated March 9, 2004 (Exhibit W, 2 pages);
  - e. Web page entitled *About BIS*, [www.bis.org/about/index.htm](http://www.bis.org/about/index.htm), dated June 2003 (Exhibit V, 1 page);
  - f. Posting from [www.adobeforums.com](http://www.adobeforums.com) in thread entitled *No Wonder Photoshop CS Seems Slow – It's Analyzing Images for Content!* by Kevin Connor, dated January 8, 2004 (Exhibit U, 2 pages);
  - g. Web page entitled *Photoshop CS and CDS*, [www.Adobe.com/products/photoshop/cds.html](http://www.Adobe.com/products/photoshop/cds.html) (Exhibit T, 1 page);
  - h. Web page entitled *Stop, You Counterfeiter*, [www.genecowan.com/blog/archives/001039.html](http://www.genecowan.com/blog/archives/001039.html), dated January 8, 2004 (Exhibit S, 2 pages).
5. I personally downloaded from the internet, and printed, the following document, shortly before its submission to the USPTO with the Amendment After Final mailed November 12, 2004:
- a. Presentation made to the 6<sup>th</sup> Information Hiding Workshop in May, 2004 by Steven J. Murdoch of the University of Cambridge, entitled "*Software Detection of Currency*," dated May 23-25, 2004 (labeled Exhibit AA).
6. The above-identified documents submitted to the USPTO are true and accurate copies of what they purport to be. For each of those documents listing a header or footer referencing a web site, such listed web site is the one from which the document was actually downloaded.
7. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false

statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

A handwritten signature in black ink, appearing to read 'William Y. Conwell', written over a horizontal line.

William Y. Conwell

A handwritten date 'Nov 12 2004' in black ink, written over a horizontal line.

Date



## Facts About Using Banknote Images

عربي

Русский

English

Español

Français

Deutsch

日本語

中文

Restrictions for use of banknote images vary by country. For information specific to either the country you are in, or the banknote image you want to use, click on the appropriate country from the list or region from the map.

### Information by Country

[Australia](#)  
[Austria](#)  
[Belgium](#)  
[Canada](#)  
[Czech Republic](#)  
[Denmark](#)  
[England](#)  
[European Central Bank](#)  
[Finland](#)  
[France](#)  
[Germany](#)  
[Hungary](#)  
[Greece](#)  
[Ireland](#)  
[Italy](#)  
[Japan](#)  
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## WHOIS SEARCH RESULTS

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**Registrant:**

EUROPEAN CENTRAL BANK (RULESFORUSE3-DOM)  
 Eurotower Kaiserstrasse 29  
 FRANKFURT, FRANKFURT 160319  
 DE

Domain Name: RULESFORUSE.ORG

**Administrative Contact, Technical Contact:**

EUROPEAN CENTRAL BANK (EC2410-ORG) no.valid.email@worldnic.net  
 Eurotower Kaiserstrasse 29  
 FRANKFURT, FRANKFURT 160319  
 DE  
 4969 13447439

Record expires on 21-Oct-2006.

Record created on 22-Oct-1999.

Database last updated on 19-Aug-2003 18:03:30 EDT.

Domain servers in listed order:

AUTH111.NS.UU.NET 198.6.1.115  
 AUTH120.NS.UU.NET 198.6.1.154

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EXHIBIT 2b

# RESERVE BANK OF AUSTRALIA

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## REPRESENTATIONS/REPRODUCTIONS OF AUSTRALIAN CURRENCY NOTES


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Section 19 of the *Crimes (Currency) Act 1981* ("the Act") prohibits the designing, making, printing or distributing of representations of currency notes capable of misleading people to believe they are genuine currency notes, unless consent has been given by either the Reserve Bank or Treasury. As a general rule, such consent is not given on the grounds that representations that are capable of misleading should not be made. The legislation covers representations of all Australian currency notes, both present and past, as well as representations of foreign paper money and certain government and similar securities. The relevant extract from the Act is set out below.

Consent is not required for a representation that is not capable of misleading. However, the legislation places an obligation on those wanting to make the representation to ensure that it is not capable of misleading the public into believing it is a genuine currency note. It follows that, if representations are made, there may be risks for those involved. Unauthorised representations that mislead, or are considered capable of misleading, could be expected to bring severe penalties under the counterfeiting provisions of the Act. Voucher-style representations are of particular concern because sometimes they are produced very inappropriately in a format that is too close to the size of a real note and of a similar colour. The Reserve Bank will not give a view on whether a particular representation is likely or unlikely to mislead.

Whilst those wanting to make a representation may take the view that the final product does not contravene the Act, consideration should also be given to risks that can arise from items created during the process by which the final product will be achieved. Those making representations should ensure that items such as photocopies, photographic negatives and positives, and scanned images stored on optical disks, graphics files or other equipment are stored securely and not misused. There might be scope for these to be used to make further representations not connected with the intended final product. The Bank strongly recommends the destruction of all such items after final use.

Persons making reproductions of currency note designs should also be aware of the Copyright Amendment (Moral Rights) Act, which came into effect from 21 December 2000. This Act recognises certain rights of the designer, including the right not to have work altered in a prejudicial way, known as "right of integrity". This "right of integrity" is a right not to have the note subjected to derogatory treatment. Derogatory treatment would include doing anything that is prejudicial to the author's honour or reputation.

Section 16 of the Act also prohibits the defacing or destroying of Australian coin or currency notes unless consent has been given by either the Reserve Bank or Treasury. As a general rule, such consent is not given on the grounds that currency notes or coin should not be destroyed or defaced. The legislation covers all Australian currency notes, both present and past. See the relevant extract from the Act below.

Subject to Sections 16 and 19 of the *Crimes (Currency) Act 1981*, the Bank will generally not raise objections to the use of currency note reproductions in advertising or other material. Exceptions include reproductions relating to products that the public might perceive to be similar in nature to currency notes, eg credit/debit/phone/smart cards, etc.

If you are unsure of your position on any of the issues referred to above or on the correct interpretation of relevant legislation, we recommend you obtain legal advice.

### EXTRACT FROM CRIMES (CURRENCY) ACT 1981

Defacing or destroying current coins or current paper money

16. A person shall not, without the consent, in writing, of an authorised person, wilfully deface, disfigure, mutilate or destroy any coin or paper money that is lawfully current in Australia.

Penalty:

EXHIBIT 2c

- (a) in the case of a person, not being a body corporate - \$5,000 or imprisonment for 2 years, or both; or
- (b) in the case of a person, being a body corporate - \$10,000.

Persons not to design, make, print or distribute material of certain kinds

19. A person shall not, without the consent, in writing, of an authorised person, design, make, print or distribute:

- (1) distribute:
  - (a) a business or professional card, notice, placard, circular, hand-bill, poster or other material that so resembles current paper money or an Australian prescribed security as to be capable of misleading a person into believing it is that current paper money or that Australian prescribed security; or
  - (b) a newspaper, journal, magazine, notice, placard, circular, hand-bill, poster, business or professional card or other material that includes a representation of current paper money or an Australian prescribed security that is, when detached from the newspaper, journal, magazine, notice, placard, circular, hand-bill, poster, business or professional card or other material in which it is included, capable of misleading a person into believing that it is that current paper money or that Australian prescribed security.

Penalty:

- (a) in the case of a person, not being a body corporate - \$5,000 or imprisonment for 2 years, or both; or
- (b) in the case of a person, being a body corporate - \$10,000.
- (2) Where an authorised person gives a consent for the purposes of sub-section (1), he may give that consent either unconditionally or subject to such conditions as he thinks appropriate.
- (3) In this section, "Australian prescribed security" does not include a prescribed security, being a bond, debenture, stock, stock certificate, treasury bill or other like security, or a coupon, warrant or document for the payment of money in respect of such a security, issued by, or with the authority of, the government of a country other than Australia.

Import and export of certain material forbidden

20. A person shall not, without the consent, in writing, of an authorised person, import into Australia or export from Australia:

- (a) any business or professional card, notice, placard, circular, hand-bill, poster or other material of the kind referred to in paragraph 19(1)(a); or
- (b) any newspaper, journal, magazine, notice, placard, circular, hand-bill, poster, business or professional card or other material of the kind referred to in paragraph 19(1)(b).

Penalty:

- (a) in the case of a person, not being a body corporate - \$5,000 or imprisonment for 2 years, or both; or
- (b) in the case of a person, being a body corporate - \$10,000."

**Note:** "Paper money" means money comprising a note written, printed or otherwise made on paper or any other material.

Paper money shall be taken to be current paper money if it is lawfully current in Australia or in a country other than Australia by virtue of a law in force in Australia or in that country, as the case may be.

All Australian notes, of both present and all past issues, are lawfully current in Australia.

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## Groups search result 2 for rulesforuse.org

**Paint Shop Pro 8 - \$59.99** • After Rebate. Great photo editor. Free shipping! (Assoc) • [www.amazon.com](http://www.amazon.com)

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**Paint Shop Pro 8 - \$49.99** • Jasc Paint Shop Pro 8 only \$49.99 after rebate. Free shipping. affil • [www.amazon.com](http://www.amazon.com)**Jasc Paint Shop Pro 8.0** • Buy this image editing software for only 49.99 after rebate. Affiliate. • [www.amazon.com](http://www.amazon.com)From: [Bernard Hill \(bernard@braeburn.co.uk\)](mailto:bernard@braeburn.co.uk)

Search Result 2

Subject: Bank notes and PSP8

Newsgroups: [comp.graphics.apps.paint-shop-pro](#)

Date: 2003-06-17 04:02:36 PST

This is the only article in this thread

View: [Original Format](#)

I discovered something to my surprise yesterday.

I am fascinated by money. Not only in the usual sense, but also in a currency sense and purely for my own interest for some years I have been keeping scans of various UK bank notes on my computer.

I have not been printing these nor using them in any way, they come up full-screen in my screen saver :-)

I can Browse them OK in PSP8, but when I try to load some of them I get this message:

"This application does not support the unauthorised processing of banknote images. For more information, select the information button below for internet-based information on restrictions for copying and distributing banknote images or go to [www.rulesforuse.org](http://www.rulesforuse.org)"

Fascinating!

However:

- a) for England, at least, as long as I do not print these images I am apparently within the law.
- b) Scotland is not mentioned.
- c) Assuming I register for use PSP8 will still not allow me to edit or print the image.

But the most interesting thing is that PSP8 contains some optical recognition algorithms. I find that quite surprising in itself.

The modern Bank of England notes are recognised, the older ones aren't and none of the 3 Banks of Scotland notes are recognised.

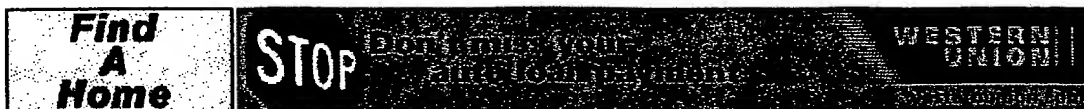
Bernard Hill  
Braeburn Software  
Author of Music Publisher system  
Music Software written by musicians for musicians  
<http://www.braeburn.co.uk>  
Selkirk, Scotland

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EXHIBIT 2d





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Photos/Graphics: · Secret Service agent inspects bill◀ more Money

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## Counterfeiting tempting for teens

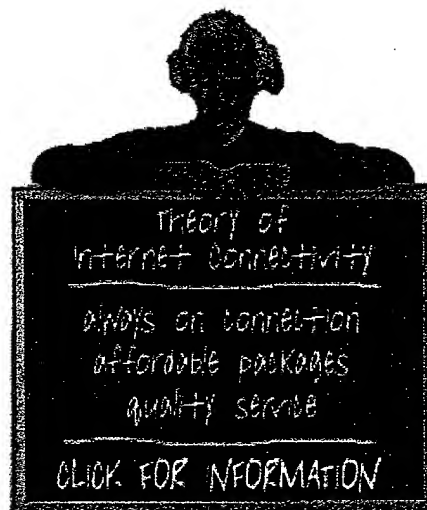
Local case a reminder for  
parents to discuss issue

**Chris Stirewalt** <[cstire@dailymail.com](mailto:cstire@dailymail.com)>  
Daily Mail Staff

Friday May 16, 2003; 11:00 AM

Many parents were shocked recently when a George Washington High School student was accused of making counterfeit money and trying to pass it off to a pizza delivery driver.

But local Secret Service agents say that nearly half of all counterfeit money is made on computers and that many kids succumb to the temptation of their computer skills to make phony bills. Agents say parents are usually the last ones to know that this illegal activity is going on.



"Many times it ends up with a bad scene when we have to go knock on their door and tell the parents what's been going on," said Matt Rugh, the resident agent in charge of the Secret Service's Charleston office. "The parents' response is often total disbelief.

"They can't imagine that their child would be involved in anything like that, but when we go up into the child's bedroom and there is the image of the bill still on the computer they see what's been going on."

Officials have not said what method the George Washington students used to make money.

Rugh said that probably 40 percent of all counterfeit money in West Virginia is computer generated — mostly from ink jet printers and color copiers. A substantial portion of that funny money comes from juveniles, he said.

Rugh said that many counterfeiting crimes arise out of curiosity, with normally law-abiding people wondering if it were possible to make a bogus bill.

"There is a great deal of temptation for people. They have access to this technology and it may seem like what you're doing on your computer is separate from reality," Rugh said. "But once you undertake to make a counterfeit bill, you've crossed a very serious line."

Much of the counterfeit money being circulated is made the traditional way by career criminals. It is printed on a press using basic technology. But Rugh said that an increasing percentage is homemade.

Every month, the Charleston Resident Office takes in somewhere between \$2,000 and \$3,000 in fake currency from all over the state. While Rugh acknowledges that the money seized is only a fraction of all the bum bills being passed, he says that the currency supply is not badly tainted.

"We're talking about an extremely small percentage of the total number of bills," Rugh said. "Nationally, we're talking about maybe one or two out of every 10,000."

But the way the Secret Service and federal prosecutors are able to keep the numbers low is by taking each case seriously.

While Rugh said that juvenile counterfeiters aren't prosecuted in federal court, he and his agents work closely with state officials to make sure they have the evidence they need to win convictions. The suspect's computer would most likely be seized and face close scrutiny if another investigation pointed back to them.

"For juveniles and smaller offenders -- a couple of hundred dollars -- we turn to the local authorities for help," Rugh said. "The U.S. Attorney's office is going to focus on larger offenses, but we can and do work with local agencies to help build cases."

Those who face federal prosecution can face prison terms of up to 20 years.

Rugh said the rollout of a new \$20 bill this week with added security highlights how individuals can help stop counterfeiting. Clerks, bartenders, cashiers and bank tellers all need to know how to tell real money from fake.

The security strip on the left hand side of the bill, the watermark that can be seen when a bill is held up to the light, the detail of the printing and special paper all denote a real bill. The new \$20 bill also has some subtle color differences to make reproduction harder.

Much of the counterfeit money that came into the local office in the last month had none of the special characteristics, but still managed to get passed.

Bills made with inkjet printers, the kind most often turned out by home counterfeiters, are detectable by the subtle spray pattern all over the bill. Instead of the ink lines being crisp, there are minute droplets of colored ink all over the note.

"Part of our job is to inform people about what to be looking for in the bills," Rugh said. "The way people most often get caught is when a clerk or someone else takes the time to look for the security features."

Rugh said that it's up to parents to talk to their computer-savvy children about counterfeiting.

"It's something very serious that parents may not think about and juveniles may not understand," Rugh said. "You've got to be aware of what's going on and lay it all on the table for your kids."

*Writer Chris Stirewalt can be reached at 348-4824.*

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Messages 1-10 from thread

Next 5

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From: Anthony Myers 22 ([anthonymyers22@wmconnect.com](mailto:anthonymyers22@wmconnect.com))


Subject: new 20

Newsgroups: [alt.fan.cecil-adams](#)

Date: 2003-10-18 21:55:02 PST

Message 1 in thread

[View this article only](#)

 You can't scan, open, paste or create any type of image file that has the new 20 dollar bill in it in Paint Shop Pro. How does it know?

.....  
"I've seen the Masturbating Bear, and I freely admit I found it rather unsophisticated humor, and didn't enjoy it much."

[Post a follow-up to this message](#)

From: James Gifford ([jgifford@surewest.net](mailto:jgifford@surewest.net))

Subject: Re: new 20

Newsgroups: [alt.fan.cecil-adams](#)

Date: 2003-10-18 22:08:15 PST

Message 2 in thread

[View this article only](#)

Anthony Myers 22 wrote:

> You can't scan, open, paste or create any type of image file that has the new  
> 20 dollar bill in it in Paint Shop Pro. How does it know?

Have you asked the Secret Service?

--

James Gifford \* FIX SPAMTRAP TO REPLY  
So... your philosophy fits in a sig, does it?  
Heinlein stuff at: [www.nitrosyncretic.com/rah](http://www.nitrosyncretic.com/rah)

[Post a follow-up to this message](#)

From: Lots42 The Library Avenger ([lots42@aol.com](mailto:lots42@aol.com))

Subject: Re: new 20

Newsgroups: [alt.fan.cecil-adams](#)

Date: 2003-10-19 07:20:02 PST

Message 3 in thread

[View this article only](#)

>Anthony Myers 22 wrote:

>> You can't scan, open, paste or create any type of image file that has the new  
>> 20 dollar bill in it in Paint Shop Pro. How does it know?

Maybe the answer is that Paint Shop Pro is crap

[Post a follow-up to this message](#)

From: Blinky the Shark ([no.spam@box.invalid](mailto:no.spam@box.invalid))

Subject: Re: new 20

Message 4 in thread

<http://groups.google.com/groups?hl=en&lr=&ie=UTF-8&oe=UTF-8&frame=right&th=a...> 10/22/2003

Newsgroups: [alt.fan.cecil-adams](#)

Date: 2003-10-19 11:35:19 PST

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Lots42 The Library Avenger wrote:

>>Anthony Myers 22 wrote:

>>> You can't scan, open, paste or create any type of image file that has the new

>>> 20 dollar bill in it in Paint Shop Pro. How does it know?

> Maybe the answer is that Paint Shop Pro is crap

Wasn't through release 5, which I've used extensively.

I can't help but wonder bout the original premise.

--

Blinky

Linux RU 297263

NEW 9/25/03:

MS Class Action Award

Vouchers for California Residents

Detail -->

<http://snurl.com/settlement>

[Post a follow-up to this message](#)

From: John Hatpin ([nospam@brookview.karoo.co.uk](mailto:nospam@brookview.karoo.co.uk))

Subject: Re: new 20

Newsgroups: [alt.fan.cecil-adams](#)

Date: 2003-10-19 17:12:16 PST

Message 5 in thread

[View this article only](#)

Blinky the Shark wrote:

>Lots42 The Library Avenger wrote:

>

>>>Anthony Myers 22 wrote:

>>>> You can't scan, open, paste or create any type of image file that has the new

>>>> 20 dollar bill in it in Paint Shop Pro. How does it know?

>> Maybe the answer is that Paint Shop Pro is crap

>

>Wasn't through release 5, which I've used extensively.

>

>I can't help but wonder bout the original premise.

PSP is pretty damned good. Not as good as Photoshop, but then what is?

I suspect that Lots42 has an agenda here regarding PSP. Maybe he'll be nice and kind and share it with us.

--

John Hatpin

[Post a follow-up to this message](#)

From: [Blinky the Shark](#) ([no.spam@box.invalid](mailto:no.spam@box.invalid))

Subject: Re: new 20

Newsgroups: [alt.fan.cecil-adams](#)

Date: 2003-10-19 17:35:12 PST

Message 6 in thread

[View this article only](#)

John Hatpin wrote:

> Blinky the Shark wrote:  
>>Lots42 The Library Avenger wrote:  
>>>>Anthony Myers 22 wrote:  
>>>>> You can't scan, open, paste or create any type of image file that has the new  
>>>>> 20 dollar bill in it in Paint Shop Pro. How does it know?  
>>> Maybe the answer is that Paint Shop Pro is crap  
>>Wasn't through release 5, which I've used extensively.  
>>I can't help but wonder bout the original premise.  
> PSP is pretty damned good. Not as good as Photoshop, but then what  
> is?

I used it for years, without problems. I'm using The GIMP, now, of course.

--  
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NEW 9/25/03:  
MS Class Action Award Vouchers for California Residents  
Detail --> <http://snurl.com/settlement>

*Post a follow-up to this message*

From: John Hatpin ([nospam@brookview.karoo.co.uk](mailto:nospam@brookview.karoo.co.uk))  
Subject: Re: new 20  
Newsgroups: [alt.fan.cecil-adams](#)  
Date: 2003-10-19 17:53:08 PST

Message 7 in thread

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Blinky the Shark wrote:

>John Hatpin wrote:  
>  
>> Blinky the Shark wrote:  
>>>Lots42 The Library Avenger wrote:  
>>>>>Anthony Myers 22 wrote:  
>>>>>> You can't scan, open, paste or create any type of image file that has the new  
>>>>>> 20 dollar bill in it in Paint Shop Pro. How does it know?  
>>>> Maybe the answer is that Paint Shop Pro is crap  
>>>Wasn't through release 5, which I've used extensively.  
>>>I can't help but wonder bout the original premise.  
>> PSP is pretty damned good. Not as good as Photoshop, but then what  
>> is?  
>  
>>I used it for years, without problems. I'm using The GIMP, now, of  
>course.

Of course. What's it like, in comparison? I notice there's a GIMP for Windows, which might be worth trying.

It might help the inevitable transition period, too. M\$ are going to be relegated here to the jobs they do best: keyboards, mouses and joysticks.

--  
John Hatpin

<http://groups.google.com/groups?hl=en&lr=&ie=UTF-8&oe=UTF-8&frame=right&th=a...> 10/22/2003

Post a follow-up to this message

From: Blinky the Shark (no.spam@box.invalid)  
 Subject: Re: new 20  
 Newsgroups: [alt.fan.cecil-adams](#)  
 Date: 2003-10-19 19:35:08 PST

Message 8 in thread

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John Hatpin wrote:

> Blinky the Shark wrote:  
 >>John Hatpin wrote:  
 >>> Blinky the Shark wrote:  
 >>>>Lots42 The Library Avenger wrote:  
 >>>>>Anthony Myers 22 wrote:  
 >>>>>> You can't scan, open, paste or create any type of image file  
 >>>>>> that has the new  
 >>>>>> 20 dollar bill in it in Paint Shop Pro. How does it know?  
 >>>> Maybe the answer is that Paint Shop Pro is crap  
 >>>>Wasn't through release 5, which I've used extensively.  
 >>>>I can't help but wonder bout the original premise.  
 >>> PSP is pretty damned good. Not as good as Photoshop, but then what  
 >>> is?  
 >>I used it for years, without problems. I'm using The GIMP, now, of  
 >>course.  
 > Of course. What's it like, in comparison? I notice there's a GIMP  
 > for Windows, which might be worth trying.

I don't put any of them to full use, as my needs are relatively simple.  
 But The GIMP is more capable overall, because, for example, it allows  
 scripting. This can combine a lot of operations into one action. For  
 instance, this was created by running a script -- by selecting a single  
 gif (rectangular, and my old site logo) and through the GUI saying "make  
 it a spinning globe" (with X width and Y height)...

Animation on for:

<http://blinkynet.net/stuff/spin.gif>

You might find the program interesting. If you have any spare time that  
 you don't mind devoting to the screen, check it out.

--

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 Detail --> <http://snurl.com/settlement>

Post a follow-up to this message

From: John Hatpin (nospam@brookview.karoo.co.uk)  
 Subject: Re: new 20  
 Newsgroups: [alt.fan.cecil-adams](#)  
 Date: 2003-10-21 15:38:22 PST

Message 9 in thread

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Blinky the Shark wrote:

<http://groups.google.com/groups?hl=en&lr=&ie=UTF-8&oe=UTF-8&frame=right&th=a...> 10/22/2003

>John Hatpin wrote:

>

>> Blinky the Shark wrote: [...]

>>>I used it for years, without problems. I'm using The GIMP, now, of  
>>>course.

>> Of course. What's it like, in comparison? I notice there's a GIMP  
>> for Windows, which might be worth trying.

>

>I don't put any of them to full use, as my needs are relatively simple.

>But The GIMP is more capable overall, because, for example, it allows  
>scripting. This can combine a lot of operations into one action. For  
>instance, this was created by running a script -- by selecting a single  
>gif (rectangular, and my old site logo) and through the GUI saying "make  
>it a spinning globe" (with X width and Y height)...

>

>Animation on for:

>

><http://blinkynet.net/stuff/spin.gif>

>

>You might find the program interesting. If you have any spare time that  
>you don't mind devoting to the screen, check it out.

Thanks, Blinky. I'll certainly give GIMP a good try, just as soon as  
I've got Python and Boa Constructor sorted out. Anything that eases  
the inevitable transition to Linux has to be good.

Open Sores is definitely the way to go.

--

John Hatpin

*Post a follow-up to this message*

From: [Blinky the Shark \(no.spam@box.invalid\)](mailto:Blinky the Shark (no.spam@box.invalid))

Message 10 in thread

Subject: Re: new 20

Newsgroups: [alt.fan.cecil-adams](mailto:alt.fan.cecil-adams)

Date: 2003-10-21 19:05:50 PST

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John Hatpin wrote:

> Thanks, Blinky. I'll certainly give GIMP a good try, just as soon as  
> I've got Python and Boa Constructor sorted out. Anything that eases  
> the inevitable transition to Linux has to be good.

The UI will take some getting used to. But explore, explore,  
explore.[1]

And here's a bible you might want to bookmark for future ref:

<http://gimp-savvy.com/BOOK/>

[1]Have fun with the script-fu stuff!

--

Blinky

Linux RU 297263

NEW 9/25/03:

MS Class Action Award

Vouchers for California Residents

Detail -->

<http://snurl.com/settlement>

<http://groups.google.com/groups?hl=en&lr=&ie=UTF-8&oe=UTF-8&frame=right&th=a...> 10/22/2003



*Post a follow-up to this message*

---

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Messages 11-15 from thread

[Prev 10](#)

[Jump to \[ Start of thread \]](#)

From: [Jason Quick \(jsquick@hotmail.com\)](#)

Subject: Re: new 20

Newsgroups: [alt.fan.cecil-adams](#)

Date: 2003-10-19 22:41:02 PST

Message 11 in thread

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"John Hatpin" <nospam@brookview.karoo.co.uk> wrote

> Of course. What's it like, in comparison? I notice there's a GIMP  
> for Windows, which might be worth trying.

I suppose I could spend a bunch of time figuring this out on my own, but...

What's up with GIMP? Someone wanna give me a rundown on why it's so great?

Jason (tired of PSP and PS) Q.

[Post a follow-up to this message](#)

From: [Blinky the Shark \(no.spam@box.invalid\)](#)

Subject: Re: new 20

Newsgroups: [alt.fan.cecil-adams](#)

Date: 2003-10-20 11:50:27 PST

Message 12 in thread

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Jason Quick wrote:

> "John Hatpin" <nospam@brookview.karoo.co.uk> wrote  
>> Of course. What's it like, in comparison? I notice there's a GIMP  
>> for Windows, which might be worth trying.  
> I suppose I could spend a bunch of time figuring this out on my own, but...

<http://gimp-savvy.com/BOOK/index.html>

> What's up with GIMP? Someone wanna give me a rundown on why it's so great?

Best answers probably here: [comp.graphics.apps.gimp](#)

--

Blinky

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Detail -->

<http://snurl.com/settlement>

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From: [Anthony Myers 22 \(anthonymyers22@wmconnect.comQ\)](#)

Subject: Re: new 20

Newsgroups: [alt.fan.cecil-adams](#)

Date: 2003-10-19 17:40:12 PST

Message 13 in thread

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>> Wasn't through release 5, which I've used extensively.

>>

<http://groups.google.com/groups?hl=en&lr=&ie=UTF-8&oe=UTF-8&frame=right&th=a...> 10/22/2003

There's a learning curve to it. It can do much more than 99.99999% of the users will ever want to do, and that can get in the way. But after a month or so of playing with it I can figure out how to do pretty much whatever I want to with it

.....

"I've seen the Masturbating Bear, and I freely admit I found it rather unsophisticated humor, and didn't enjoy it much."

[Post a follow-up to this message](#)

From: Anthony Myers 22 ([anthonymyers22@wmconnect.com](mailto:anthonymyers22@wmconnect.com))  
 Subject: Re: new 20  
 Newsgroups: [alt.fan.cecil-adams](#)  
 Date: 2003-10-19 12:03:50 PST

Message 14 in thread

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>Maybe from the color?

I changed it to grayscale (in another program) and tried to paste it as a new selection in a blank image, and it still wouldn't

.>8 will redirect you to  
 ><http://www.rulesforuse.org/> if the picture is high-res enough. >>

It's not too picky. I tried a scan of a photocopy and it still didn't work.

>You can get around the limitations by using only a small sliver of the  
 >bill at a time, and merging them afterwards. Perhaps the thing will  
 >trigger eventually?

I suspect it has something to do with the borders. I managed to get most of Jackson's face to work, but most anything else bigger than about one square cm triggers the error message

.....

"I've seen the Masturbating Bear, and I freely admit I found it rather unsophisticated humor, and didn't enjoy it much."

[Post a follow-up to this message](#)

From: groo ([groo@groo.org](mailto:groo@groo.org))  
 Subject: Re: new 20  
 Newsgroups: [alt.fan.cecil-adams](#)  
 Date: 2003-10-21 11:08:06 PST

Message 15 in thread

[View this article only](#)

Anthony Myers 22 wrote:

> I suspect it has something to do with the borders. I managed to get most of  
 > Jackson's face to work, but most anything else bigger than about one square cm  
 > triggers the error message  
 > .....  
 > "I've seen the Masturbating Bear, and I freely admit I found it rather  
 > unsophisticated humor, and didn't enjoy it much."

That is an error message worthy of Microsoft.

*Post a follow-up to this message*

---

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Search Result 1


Subject: Re: Scanner recs wanted

Newsgroups: [rec.crafts.metalworking](#)View: [Complete Thread \(5 articles\)](#)

Date: 2003-10-20 12:06:39 PST

[Original Format](#)

I've been using an Agfa Snapscan 1212U for about three years at work, and we just got a cheapie HP on another computer. I have an HP 6110 multifunction printer at home which includes a scanner. All work quite well for all of our needs.

 The only hitch has been that when I tried to scan and print one of the new \$20 bills (the one with MY name on it!) all I got is about a half-inch of beautiful color print and then a URL directing me to [www.rulesforuse.org](http://www.rulesforuse.org) which tells about currency reproduction restrictions. Actually, this is pretty impressive, considering that this relatively inexpensive machine not only scans, prints, copies, and faxes, it also has image-recognition software and/or firmware!

I'm still trying to figure out how to get a nice color blowup of my money. Kinko's won't do it. My printer won't do it. I'm way too cheap to have an 8x10 print made. What to do, what to do ....

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EXHIBIT 3b



## KNOW YOUR MONEY

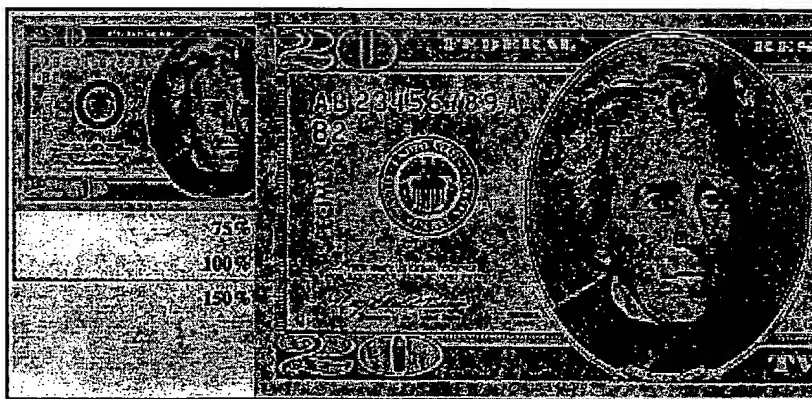
### Illustrations of Currency, checks, or Other Obligations

The law sharply restricts photographs or other printed reproductions of paper currency, checks, bonds, revenue stamps, and securities of the United States and foreign governments.

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Photographic or other likenesses of other United States obligations and securities and foreign currencies are permissible for any non-fraudulent purpose, provided the items are reproduced in black and white and are less than three-quarters or greater than one-and-one-half times the size, in linear dimension, of any part of the original item being reproduced. Negatives and plates used in making the likenesses must be destroyed after their use for the purpose for which they were made. This policy permits the use of currency reproductions in commercial advertisements, provided they conform to the size and color restrictions.

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Note: Canceled U.S. and foreign postage stamps must bear an official cancellation mark, i.e., the stamps must have been used for postage. Also, the plates and negatives, including glossy prints, of any United States or foreign obligations must be destroyed after their final use for the purpose for which they were made.

Printed illustrations of United States and foreign revenue stamps are permissible in black and white only. There are no size restrictions for revenue stamps.

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From: Richard M. Smith [mailto:rms@computerbytesman.com]=20

Sent: Saturday, January 17, 2004 12:10 PM

To: BUGTRAQ@SECURITYFOCUS.COM

→ Subject: HP printers and currency anti-copying measures

Hi,

Last week, the Associated Press reported that Adobe has incorporated anti-copying technology in their Photoshop CS software which prevents users from opening image files of U.S. and European currency. Here's the article:

Adobe admits to currency blocker

<http://tinyurl.com/2xnno>

=20

(<http://www.sanmateocountytimes.com/Stories/0,1413,87~11271~1882929,00.html>)

I did some investigating on my own computer and discovered that HP has also been shipping currency anti-copying software in their printer drives since at least the summer of 2002. I have an HP 130 photo printer and found the string "<http://www.rulesforuse.org>" embedded in the driver. =20

According to a few newsgroup messages posted in 2002 and 2003, folks are seeing this URL printed out when they attempt to print images of certain types of bills. An HP printer with this anti-copying technology only prints out an inch of a currency image before aborting the print job.

Here is a list of HP printers which appear to have this anti-copy technology embedded in their Windows printer drivers:

HP 130  
HP 230  
HP 7150  
HP 7345  
HP 7350  
HP 7550

I suspect the list of affected HP printers is much longer.

I located these printer drivers simply by searching all files in my Windows and Program Files directories for the string "rulesforuse". If other folks run this same experiment, please let me know of other programs which appear to contain currency anti-copy technology.

There are some unanswered questions raised by this quiet effort by U.S. and European governments to turn home computers into anti-counterfeiting "cops":

1. Besides graphic programs and printer drivers, what other kinds of software is this currency anti-copy technology being embedded in?
2. Are companies being required to include currency anti-copying technology in their products? If not,=20

EXHIBIT Z

EXHIBIT Z (4a)




what incentives are being offered to companies to=20  
include the technology on a voluntary basis?

3. Will future versions of this technology, "phone home" to the rulesforuse.org Web site with details about a violation of the currency copying rules? It would be very easy to include an email address, name of the image file, software version number, etc. embedded in a URL to the rulesforuse.org when a violation has been detected.

Richard M. Smith

<http://www.ComputerBytesMan.com>

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## World Banks Working To Stop Counterfeiting March 9, 2004

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**The major central banks confirmed that they've worked with software and hardware vendors to keep counterfeiters from being able to use PCs to make phony money.**

By Alexander G. Higgins, Associated Press Writer

GENEVA (AP) — The world's major central banks confirmed Tuesday that they collaborated with leading hardware and software companies to keep personal computers from being used to make counterfeit money.

Work begun nearly four years ago by the so-called Group of Ten central banks resulted in the "counterfeit deterrence system," according to the statement from the Bank for International Settlements in Basel.

"Several leading personal computer hardware and software manufacturers have voluntarily adopted the system in recognition of the harm that counterfeit currency can cause their customers and the general public," said BIS, known as "the central bankers' central bank."

The BIS agreement became a source of public debate earlier this year when software maker Adobe admitted altering its Photoshop program to discourage counterfeiters. The issue has angered computer users who worry it will lead to censorship and future restrictions on other types of images, such as copyrighted or adult material.

An official familiar with the development of the technology said the system is based on special coding on bank notes, which currently is included only on major currencies.

Printer "drivers"—the software that makes printers work with PCs—recognize the code and refuse to print the complete image of a bill. That driver is included in almost 90 percent of the printers available today, said the official, who spoke on condition of anonymity.

Adobe, maker of the widely used graphics program Photoshop, acknowledged in January that it quietly added the technology to the software at the request of government regulators and international bankers.

Photoshop now refuses to display images of coded currency and advises the user to consult rules against copying bank notes, the official added.

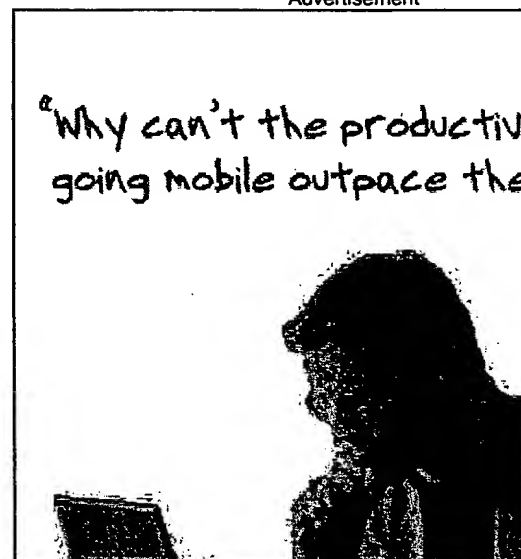


EXHIBIT Y

EXHIBIT Y (4b)

A third step that will be added later this year is software that will make scanners refuse to scan images of currency, the official said.

The bank statement said no one could use the technology to track the use of a personal computer or digital imaging tool.

"Consumers will not notice any difference in the performance or effectiveness of products equipped with this technology," it said.

The Group of 10 banks represent the world's largest economies. There are actually 11 countries in the group: the United States, Japan, Germany, Britain, France, Canada and Italy plus Switzerland, Sweden, Belgium and the Netherlands.

Altogether 27 central banks and note-printing authorities joined in the Central Bank Counterfeit Deterrence Group, the working group that developed the system, the BIS statement said.

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## Enterprise software

### Adobe, others slip anticounterfeiting code into apps

Last modified: January 9, 2004, 5:43 PM PST

By Robert Lemos  
Staff Writer, CNET News.com
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Adobe and other makers of image-manipulation programs have, at the behest of a little-known group of national banks, inserted secret technology into their programs to foil counterfeiting, the companies acknowledged this week.

Photoshop and other programs will no longer be able to open files containing images of several nations' currencies, said Kevin Connor, director of product management for Adobe. The code to detect such images came from the Central Bank Counterfeit Deterrence Group, a low-profile association representing the national banks from Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom and the United States.

At the request of the group, Adobe and other software companies have inserted the functionality into their programs.

"This is a relatively new thing," Connor said. "We are not the first software application to do this, but we are probably the largest."

While Connor didn't know which currencies were protected by the technology, users of Adobe Photoshop CS and Jasc's Paintshop Pro have complained that files containing images of the new U.S. \$20 bill and several Euro denominations cannot be opened. Moreover, Connor stressed that the technology is already included in most color printers.

The creator of the technology, Digimarc, confirmed that it had produced the code under contract to the banking group, but wouldn't discuss any details.

"Due to the nature of the project, all the players and details are confidential," said Leslie Constans. Jasc, the maker of Paintshop Pro, couldn't be reached for comment.

Little information exists on the Central Bank Counterfeit Deterrence

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▶ Utility computing

EXHIBIT X

Group (CBCDG).

The association was formed in 1993 by the governors of the G-10 central banks, according to the Bank of Canada's annual report. Originally called SSG-2, the group has mainly been given the task of developing a system to deter computer-based counterfeiting. In 2003, the United States gave \$2.9 million to the counterfeit-deterrence program, according to a report from the Federal Reserve. The Bank for International Settlements acts as the association's agent in contractual arrangements, according to information on the BIS's Web site.

The group could not be contacted for comment.

As early as 2000, the Central Bank Counterfeit Deterrence Group started approaching companies that made image manipulation programs as well as color printers, asking them to include anticounterfeiting technology in their products. In addition, the European Central Bank has requested that the Commission for European Communities create legislation that would make the inclusion of such technology mandatory.

In the United States, such technology goes beyond the requirements of the law. U.S. artists are able to scan and use the image of currency in their works as long as the image is less than 75 percent or greater than 150 percent of the dimensions of the original bill. Artists are also required to only make single-sided prints of the image and to destroy the digital copy when the work is done.

"The current implementation does not take into account your intent," said Adobe's Connor, who characterized the curtailing of artists rights as just "changing the source of where you would get the images."

Now artists will have to download images from a legal source, such as the U.S. Bureau of Printing and Engraving.

Yet, one poster to Adobe's forums found that even bank-provided images of currencies couldn't be opened. A collage of several denominations from a Swedish bank couldn't be opened.

"This is insane," the person wrote. "Nobody, and certainly not software I pay for, should have any say of what sort of image I am allowed to open."

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## Central banks and technology industry join to combat banknote counterfeiting

9 March 2004

In response to the threat of increasing use of personal computers and digital imaging tools in counterfeiting banknotes, the Governors of the G10 central banks authorised in May 2000 the development by a group of central banks of a system to deter PC-based counterfeiting. At their meeting in March 2004, the Governors took note of important progress in this area.

The Central Bank Counterfeit Deterrence Group (CBCDG) has now developed the Counterfeit Deterrence System, consisting of anti-counterfeiting technologies which prevent personal computers and digital imaging tools from capturing or reproducing the image of a protected banknote.

Several leading personal computer hardware and software manufacturers have voluntarily adopted the system in recognition of the harm that counterfeit currency can cause their customers and the general public. The technology does not have the capacity to track the use of a personal computer or digital imaging tool and consumers will not notice any difference in the performance or effectiveness of products equipped with this technology.

Further information is available on the website [www.rulesforuse.org](http://www.rulesforuse.org), which has links to the regulations of various countries governing the reproduction of banknotes. In countries where the new technology restricts a user's ability to copy images of banknotes, the central bank (or the appropriate authority) will make available banknote images for reproduction in accordance with its requirements. The [www.rulesforuse.org](http://www.rulesforuse.org) website directs users to the procedures and sources of banknote images for countries where they are available.

### What is the CBCDG?

The CBCDG's mission is to investigate emerging threats to the security of banknotes and to propose solutions for implementation by issuing authorities. The CBCDG is a working group of 27 central banks and note printing authorities. Its Chairman is Mr Marc Salade, National Bank of Belgium. Ms Lorraine Laviolette, Bank of Canada, serves as the Project Director of CBCDG activities. The CBCDG meets annually at the Bank for International Settlements

### Further Information

- ④ Next press release:  
[Financial sector foreign direct investment key to bringing emerging economies into global financial system, says CGFS](#) (30 Mar)
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EXHIBIT W

(BIS) in Basel, where its secretariat is located.

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## About BIS

June 2003

The Bank for International Settlements (BIS) is an international organisation which fosters international monetary and financial cooperation and serves as a bank for central banks.

The BIS fulfils this mandate by acting as:

- a forum to promote discussion and facilitate decision-making processes among central banks and within the international financial community
- a centre for economic and monetary research
- a prime counterparty for central banks in their financial transactions
- agent or trustee in connection with international financial operations

The head office is in Basel, Switzerland and there are two representative offices: in the Hong Kong Special Administrative Region of the People's Republic of China and in Mexico City.

Established on 17 May 1930, the BIS is the world's oldest international financial organisation.

As its customers are central banks, the BIS cannot accept deposits from, or provide financial services to, private individuals or corporate entities.

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EXHIBIT V



Kevin Connor - 07:33pm Jan 8, 2004 Pacific (#269 of 1380)

As someone at Adobe who was involved in the decision to include counterfeit deterrence in Photoshop CS, let me finally provide you with a response to all of these concerns and questions. Sorry for the delay!:

Photoshop CS does indeed include a counterfeit deterrence system (CDS) to prevent the illegal duplication of banknotes. The CDS was created by a consortium of central banks from around the world. We, along with other hardware and software manufacturers, have included CDS in our products at their request to address the threat posed by the use of digital technologies in the counterfeiting of banknotes. There are other software products from other companies that already use this same technology. There are also hardware products that use the same or similar technology. For example, most color copiers sold today will not allow you to copy currency.

As digital imaging technology advances, becoming more broadly available and user friendly, the old barriers to currency reproduction are becoming less effective. The unscrupulous are taking advantage of the functionality that is being provided to the vast majority of honest users for the purposes of counterfeiting currency. In the US and around the world, counterfeiting through digital means is increasing exponentially, and retailers and the general public--including our own customers--are at risk.

Counterfeit currency is essentially a hot potato. Whoever holds it last, loses. The person who loses isn't necessarily the counterfeiter. There's no government body in place to "reimburse" people who, through no fault of their own, get paid with currency that turns out to be counterfeit. In our implementation of CDS, we've worked very hard to balance the need to protect these unsuspecting victims of counterfeiting along with the need to continue to provide a product that efficiently does what honest customers need it to do.

There appear to be several major concerns and objections repeated throughout this message thread, so I'll try to address each one individually:

1. Performance: CDS does not cause any noticeable slowdown in Photoshop performance. During most operations performed in Photoshop, CDS is not used at all. When it is used, the performance impact often is just a fraction of a second.

2. Legal use of notes: It is true that the current implementation of CDS will prevent you from scanning in your own banknotes even if your usage intent is entirely within legal boundaries. Regulations for using banknote images vary by country. It is the responsibility of the central bank in each country to provide images that can be used within the legal guidelines of that country. In other words, if you want to legally reproduce images of the new \$20US bills on a Web site or in a marketing brochure, you can contact the U.S. Bureau of Engraving and Printing for legal images that can be opened and manipulated in Photoshop CS. (You can visit them at [www.moneyfactory.com](http://www.moneyfactory.com).) Similar solutions should be available in other countries. If you find that your central bank is not providing adequate support to permit legal uses of their banknote images, then you should let them know.

3. Adobe's intentions: Please be assured that this implementation of CDS is not a step down the road towards Adobe becoming "Big Brother." We know that one of the reasons people love Photoshop is because it's an incredibly flexible tool that can be used for so many different things. That's also one of the reasons we at Adobe enjoy working on new versions. Finding ways to prevent you from doing things in Photoshop really doesn't interest us! Moreover, the CDS is not Adobe technology, but was provided by the central banks, who would have no reason to want to restrict anything other than bank notes. Counterfeiting is really a special case in which we could see how our own technology advances were making it easier to commit crimes and we were asked to implement a solution that would have minimal

EXHIBIT U

EXHIBIT U (4f)

impact on honest customers. Yes, there is some impact, in that you need to contact your central bank for images, but our hope is that it's not a huge inconvenience for that small group of customers who do need to reproduce these images in their graphic design work. It also provides the central banks with an opportunity to better educate customers on exactly what is and isn't legal usage.

Of course, CDS in Photoshop CS is essentially a 1.0 implementation of a feature, analogous to the state of the layers palette in Photoshop 3.0. We realize that there may be room for improvement, particularly if there are corner usage cases that weren't taken into account in our current designs. We do want to hear about your concerns, and we definitely want to hear if there's a specific problem that this implementation has created for you. As with any Photoshop feature, we depend on hearing from customers so that we can make continual improvements release after release.

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# Adobe Photoshop cs

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## Adobe Studio

## Digital imaging

## Web publishing

## Print publishing

## Digital video

## Photoshop CS and CDS

Adobe® Photoshop® CS software includes a counterfeit deterrence system (CDS) that prevents the use of the product to illegally duplicate banknotes. As implemented, CDS prevents users from opening detailed images of banknotes within Photoshop CS. The CDS technology was commissioned by the Central Bank Counterfeit Deterrence Group (CBCDG), a consortium of central banks from around the world. Adobe has included CDS in Photoshop CS at the request of the CBCDG.

Many countries allow the reproduction of their currency, subject to specific restrictions. For example, images of currency are often legitimately incorporated into advertising materials and fine art projects. Adobe incorporated CDS into Photoshop CS only after receiving assurance from the CBCDG that central banks, in countries that permit currency reproductions, would provide images of currency that can be used within the legal guidelines of those countries. Adobe is actively working with central banks to ensure that viable images will be available to our customers. CBCDG member central banks may be reached via links found at <http://www.rulesforuse.org>.

Users who are unable to locate suitable currency images from central banks should contact Adobe at [photoshopcds@adobe.com](mailto:photoshopcds@adobe.com). Adobe will forward all such inquiries to central banks in the appropriate regions.

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EXHIBIT T

<http://www.adobe.com/products/photoshop/cds.html>

EXHIBIT T (4g)

4/26/2004

genecowan.com

Just as I thought

g-world

COWAN

# Just as I thought

A web log from the man who brought you "pissing" and "moaning"

« A new class of non-citizen | Main | Let's send him in the first rocket »

January 08, 2004

## Stop, you counterfeiter

Isn't this an interesting example of making criminals of us all: the new version of Adobe Photoshop will not allow you to scan, open, or manipulate images of U.S. banknotes.

Using Photoshop CS to open this publicly available image of the \$20 bill (from the U.S. Treasury site) yields an alert:

This application does not support the unauthorized processing of banknote images.

For more information, select the information button below for Internet-based information on restrictions for copying and distributing banknote images or go to [www.rulesforuse.org](http://www.rulesforuse.org).

Doing exactly that takes you to the U.S. Secret Service website, which states:

The Counterfeit Detection Act of 1992, Public Law 102-550, in Section 411 of Title 31 of the Code of Federal Regulations, permits color illustrations of U.S. currency provided:

1. the illustration is of a size less than three-fourths or more than one and one-half, in linear dimension, of each part of the item illustrated;
2. the illustration is one-sided; and
3. all negatives, plates, positives, digitized storage medium, graphic files, magnetic medium, optical storage devices, and any other thing used in the making of the illustration that contain an image of the illustration or any part thereof are destroyed and/or deleted or erased after their final use.

So, in other words, the U.S. government says that I can use currency provided I follow those rules. But Adobe is enforcing a law that's all their own.

EXHIBIT S

April 2004

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 Recent Rants

A g-mail explosion

Two things about this: first, this is yet another example of the hysteria that is making criminals of every consumer, from people who make copies of music to people who record television programs. Second, it's interesting that the program can recognize banknotes. I wonder if this has something to do with the recent redesign of U.S. currency? Is there something in the money that triggers this? Is this one of the "additional anti-counterfeiting measures" that have been kept secret? In fact, the Treasury website says: "Also, a machine-readable feature has been incorporated for the blind. It will facilitate development of convenient scanning devices that could identify the denomination of the note."

More on this knee-jerk nonsense on slashdot.

[via MetaFilter]

[More on this from CNet - Adobe speaks.]

Update: CNet reports that the technology behind this was developed by Digimarc, which explains how it works. Digimarc is the company that provides "watermarks" in images which can be decoded by a computer even if the image is cropped, scanned, or photocopied. The Digimarc plug-in has been embedded in Photoshop for some time now. Anyone can register with Digimarc, which then allows them to embed a serial number or code in their images using the plug-in. The code is embedded by use of a sort of 3D bar code that takes advantage of the detail in the image to make it invisible to the naked eye. It's pretty cool, actually. Anyway, this is what I figured the Treasury was using - a Digimarc watermark in the \$20 bill, embedded in the details.

Posted by Gene at January 8, 2004 04:31 PM | [TrackBack](#)

### Comments

Oddly enough you can open the image and edit it in ImageReady CS which is packaged with Photoshop. Not just bizarre but inconsistent as well.

Posted by: Tim at January 9, 2004 09:02 PM

### Post a comment

Name:

Email Address:

URL:

Remember personal info?

☐ Yes ☐ No

Comments:

I have a good excuse  
A blast from her past  
Tell your mommy  
Is it safe?  
Dirty Air  
April Fool!  
Fox: Words Not Needed  
Perhaps I should sue  
Radio for Kirk  
Radio for the rest of us  
These are broken

 I am Mr. Cowan, your host.

Do you really want to know?

 Cowan Cams

Backyard Weather

 Drop a Line

"gene at genecowan.com"  
Send a mobile message  
AIM/IChat: itsgenecowan

 Link-o-Rama

genecowan.com  
g-world: a personal theme park  
Jann Linder  
The Island of Dr. Eric  
Sara Hickman  
National Council for the Social  
Studies

Sives  
American Prospect  
Ananova Quirkies  
Annoying.com  
AntiCoulter: Evil or Just Stupid?  
Atrios  
Body and Soul  
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Boing Boing[updated]  
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D.C. Metro Blog Map  
Dave Prime's Journal  
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DCRTV  
Democratic Underground  
digital flotsam  
dogpoet  
dollarshort.org  
elf-reflection[updated]  
FARK.com  
futurefeedforward  
Gawker  
get off my lawn  
Gizmodo  
go fish[updated]

EXHIBIT AA



## Software Detection of Currency

Steven J. Murdoch

University of Cambridge, Computer Laboratory,  
15 JJ Thompson Avenue, Cambridge CB3 0FD, United Kingdom  
<http://www.cl.cam.ac.uk/users/sjm217/>

6th Information Hiding Workshop  
Toronto, Ontario, Canada  
23 – 25 May 2004

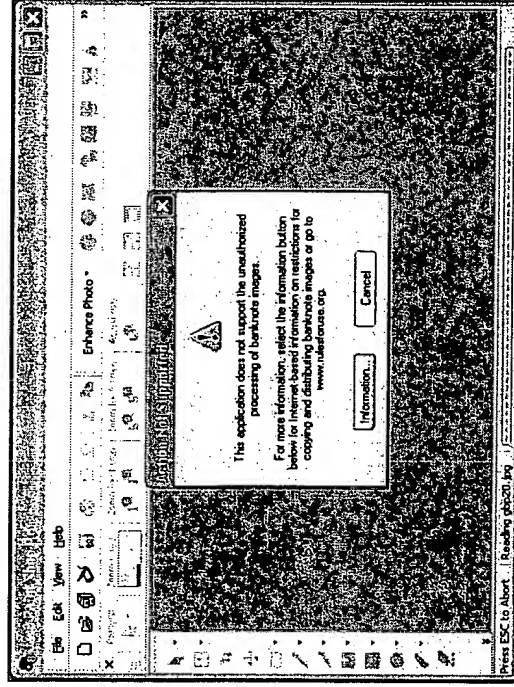


EXHIBIT AA (5a)

## Background

- ▶ New image processing software incorporates code to prevent images of currency being processed
- ▶ Includes Adobe Photoshop, JASC Paintshop Pro, HP printer Drivers, Canon scanner software
- ▶ Details of the detection algorithm not publicly known, even by the authors of software which uses it
- ▶ Code seems to have been produced by Digimarc, on behalf of the G10 Central Bank Counterfeit Deterrence Group (27 banks)

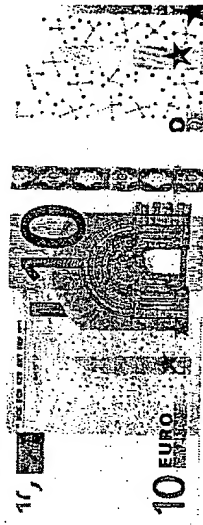
rulesforuse.org



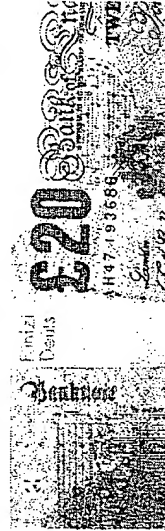


## The EURion Constellation

Markus Kuhn, Computer Laboratory, University of Cambridge, 2002-02-08



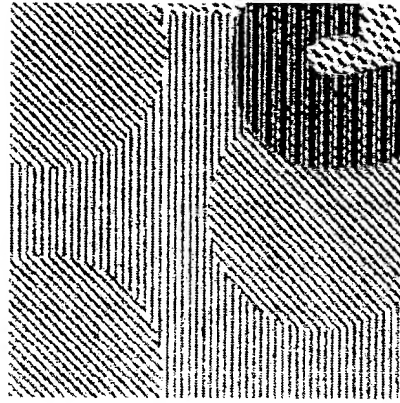
Modern colour photo-copying machines refuse to copy many of the more recent banknotes, such as the pound, mark or euro. But how do they decide, what is a banknote? They search for a simple geometric pattern, consisting of five 1 mm large circles that appears on many more recent banknotes, usually in yellow, but often also in green or orange. The circles are particularly well visible in the blue channel, can be easily detected with a matched filter and tested for the presence of the characteristic constellation.



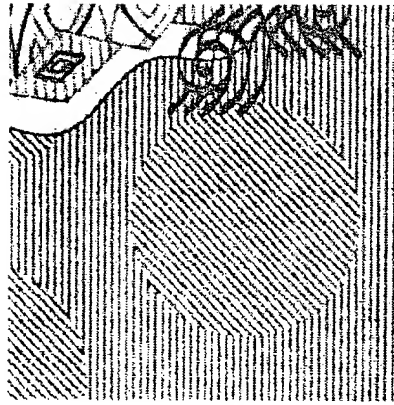
## Strongly Detected Regions (1)



## Strongly Detected Regions (2)

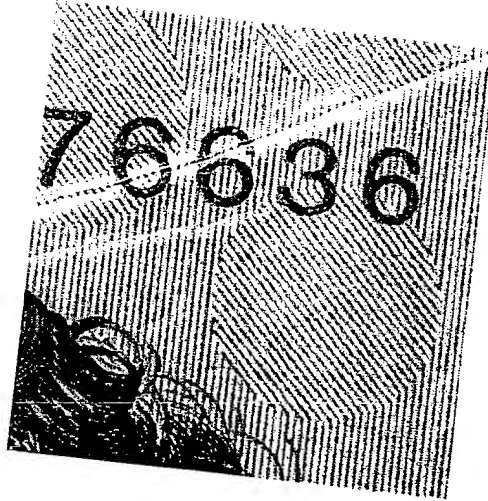


## Strongly Detected Regions (2)



Background  
Strongly Detected Regions  
Benchmarking  
More Information

## Strongly Detected Regions (2)



Steven J. Murdoch | Software Detection of Currency

## Midpoint Filtering



CM\_midpoint(10)

## Shearing



CM\_shearing(2.6)

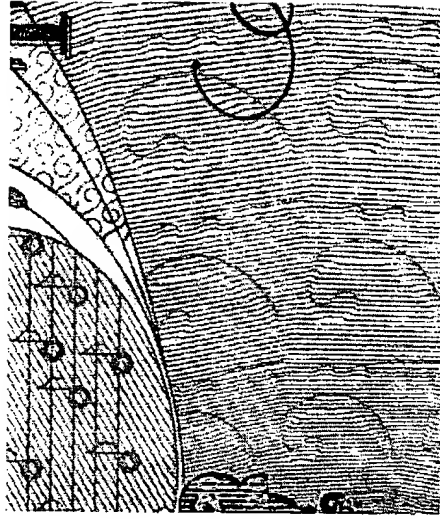
## Resampling



CM\_sampledownup(0.8, 1/0.8)



## Wavelet Compression



CM\_waveletcompression(0.5)

For more information...

Results of other tests and further details:  
<http://www.cl.cam.ac.uk/users/sjm217/projects/currency/>

Contact:  
<http://www.cl.cam.ac.uk/users/sjm217/>

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